DOCUMENT RESUME

ED 049 719 24 HE 002 232

TITLE	Social Values and Expectancies as Predictors of Curriculum Satisfaction and Academic Performance in Higher Education. Final Report.
INSTITUTION	Kansas State Univ., Wichita.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C. Bureau of Research.
BUREAU NO	BR-9-F-107
PUB DATE	10 Mar 71
GRANT	OEG-6-70-001(509)
NOTE	94p.
EDRS PRICE	EDRS Price MF-$0.65 HC-$3.29
DESCRIPTORS	*Academic Performance, Analysis of Variance, *Higher Education, Measurement Instruments, *Social Values, Student Attitudes, Student Opinion, *Student Teacher Relationship, *Teacher Evaluation

ABSTRACT

This report describes a study that was conducted to further clarify how the expectations of students interrelate with their evaluation of their professors and their satisfaction with their course of study. The study also tried to determine whether a particular program was populated by individuals with particular academic philosophies, and to validate an instrument developed to measure expectations. The analysis of the research proceeded in two major phases. The first phase involved factor analyses of the preliminary instruments and analysis of variance involving 3 basic graduate programs in the Department of Administration in which the subjects of the study were enrolled, and the degree of satisfaction which they experienced with their programs. The second phase involved intercorrelations and master factor analyses of the derived factor scales and the other unanalyzed data. These analyses involved a larger and more varied sample. (AF)

FINAL REPORT

Project No. 9-F-107

Grant No. OEG-6-70-001(509)

SOCIAL VALUES AND EXPECTANCIES AS PREDICTORS OF CURRICULUM SATISFACTION AND ACADEMIC PERFORMANCE IN HIGHER EDUCATION

Arthur B. Sweney, Ph. D. - Director
Center for Human Appraisal and Communication Research
Wichita State University
Wichita, Kansas

March 10, 1971

U.S. DEPARTMENT OF
HEALTH, EDUCATION AND WELFARE

Office of Education
Bureau of Research

FINAL REPORT

Project No. 9-F-107

Grant No. OEG-6-70-001(509)

SOCIAL VALUES AND EXPECTANCIES AS PREDICTORS OF CURRICULUM SATISFACTION AND ACADEMIC PERFORMANCE IN HIGHER EDUCATION

Arthur B. Sweney, Ph. D. - Director
Center for Human Appraisal and Communication REsearch
Wichita State University
Wichita, Kansas

March 10, 1971

The research reported herein was performed pursuant to a grant with The Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

TABLE OF CONTENTS

List of Tables

List of Tables (Continued)

List of Tables (Continued)

List of Figures

ACKNOWLEDGMENTS

The process of understanding attitudes and expectancies of student encountering higher education should be an important area of concern to behavioral scientists and certainly for all of us who are involved in the process of college teaching. Since our formal training concerning techniques and theories of higher education is limited and since the body of the research data have not been compiled, there are many opportunities for isolated studies such as the one which will be descrived in the following pages.

The study was conceived by several faculty members in the College of Business who recognized the variance in teaching methods and goals employed by various faculty members and wondered how these might be functional or disfunctional as seen from a student's point of view. From this nucleus of concern came the research design employed in this study and some coordinated efforts in other aspects of instruction. This project was supported by Dean Francis Jabara of the College of Business and waa aided by a number of faculty members who provided ideas and students. Dan Costley, James Campbell. Kirk Downey, and Sam Webb. Individual faculty members from other colleges included Robert Knapp, Psychology; Robert Pate and Robert Alley from the Education Department.

Very special acknowledgments must be extended to Dr. Jay R. Weston from Toronto who served as a co-investigator and consultant from the early inception of this research.

CHAPTER I

INTRODUCTION

The body of knowledge involving teaching methods, philosophy, and student attitudes on the level of higher education is not highly developed. College students have been used as experimental subjects for a large number of studies involving nearly every scientific question excepting the one which most involves them,i.e., their own college experience.

Educators have become increasingly sensitive to the possibility that they maybe talking to a deaf audience. Long before the present overt college unrest became a topic of public concern, individual college professors and administrators recognized a lack of definition of goals and objectives which they commonly shared with the students. The old rule of speculating how I felt when I was a student no longer seemed valid. The question of transferring expertise and methods from the College of Education was equally unacceptable since they too were suffering from the loss of creditability. It, thus, has become increasingly clear that if higher education is going to survive its present ordeals, it must develop a meaningful strategy for setting goals and establishing discourse among teachers and students.

Some of the confusion which is focused upon the college scene today may stem from the limited amount of basic research that has been directed toward the college environment. There are obvious signs that basic expectations of the students are not being met by academia and that both sides of the encounter are relatively unaware of their respective value systems.

The research in social climate have become focused upon the concepts of authoritarianism and dogmatism. Hence, scales exist in these areas which can be directly applied to the complex interactions which seem to be present in our colleges today. Although the measures in the social climate areas are not sophisticated, when taken together they seem to represent a positive manifold of some basic cognitive style or some underlying value system; Intolerance for Ambiguity, Dogmatism, Conservatism, Fascists, Ethnicism, and Authoritarianism all share a high positive correlation in spite of the diverse methods employed to measure them. When applying these concepts to the academia setting specialized constructs emerge and new instruments must be developed.

Educators today have become concerned about the relative values of structure vs unstructured, of lectures vs discussion, of teacher domination vs student domination, and of authoritarianism vs permissiveness. The answers when they come will undoubtedly be complex and incomplete. Were the answers obvious, they would have been found much earlier.

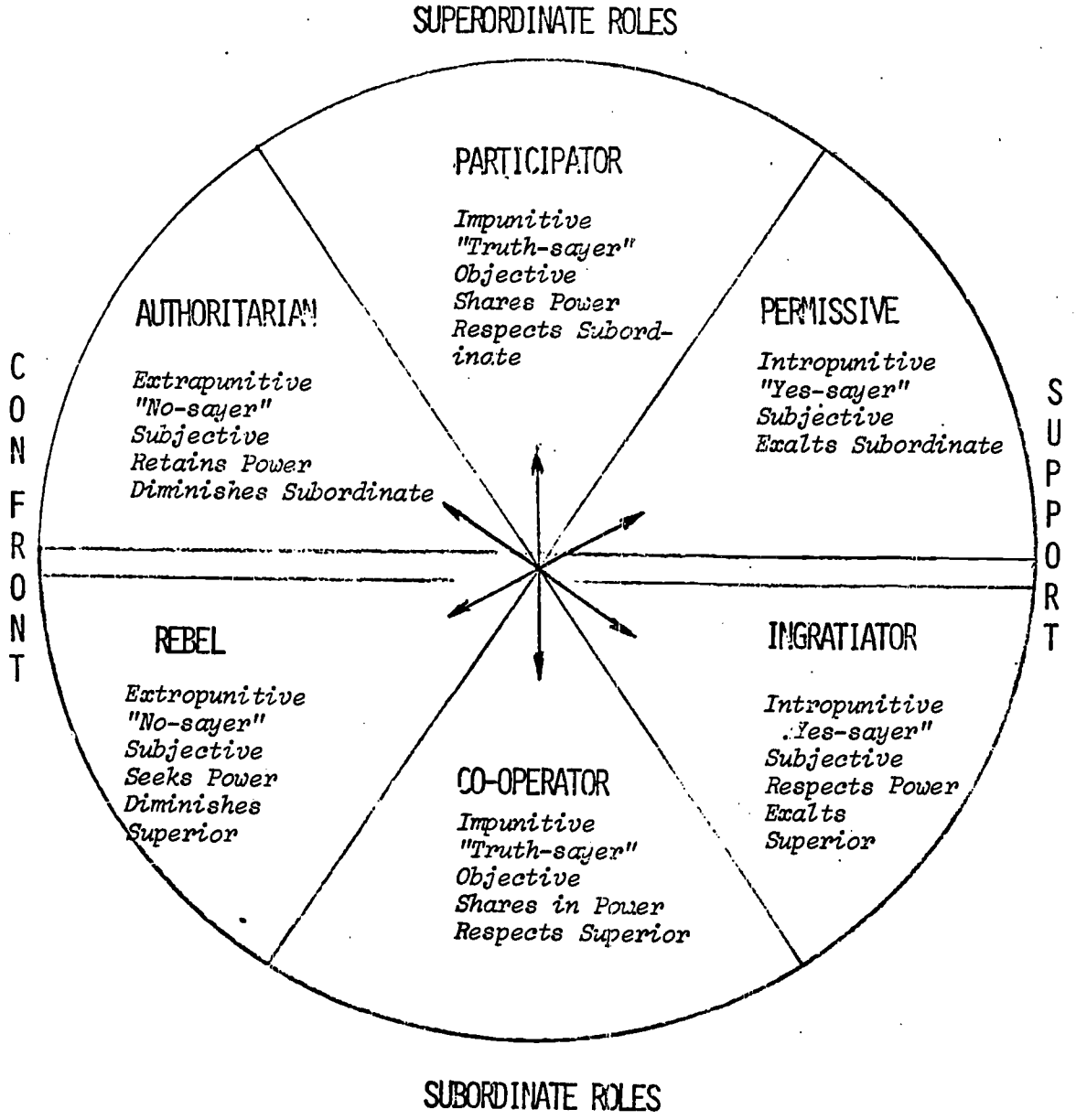
New methods of conceptualizing interpersonal dynamics are being introduced in other areas and should be considered as possible models for viewing the classroom encounter in both higher and lower education. Systems models have become increasingly applicable to interpersonal relationships in organizational theory and could be applied to educational problems as well. The concept of corrective and non-corrective feedback have particular implications for the learning process both formal and informal. The concepts involving communication channels may very well constitute the characteristics of what at an early time was called social climate. For education it is particularly important that not only content but direction of communication should be fully understood. In traditional educational patterns, the communications operate downward from the teacher to the student with only minimal pertinent feedback being processed by the teacher. The student is perceived as the passive receptor and the teacher as the transmitter. The superior-subordinate roles in the educational process is, hence, very firmly identified.

The systems minded analyst is viewing the educational process with two basically dissimilar models. The closed systems model describes a finite reservior of knowledge which is at the beginning the sole property of the teacher and which through the learning process is miraculously transferred to the student through some formal didactic processes. Not only is this system perceived as closed but it assumes some rigid protocols of behavior and a fixed hierarchical arrangement of personnel. The open systems model suggests that there is no finite reservior of knowledge and that knowledge is constructed through the process of interactions between persons of all levels who cogitate upon the same basic areas of concern. In this model protocol and status are not only unnecessary, but disfunctional and the successful learning experience is one in which all persons learn.

Because of the basic differences in the open and closed educational models very different assumptions, expectations, and values and procedures are employed in support of each. It is a theory of the investigator that the time is ripe to study these complex interactions in a more empirical way than has heretofore been reported by the literature.

FIGURE 1: A HEURISTIC MODEL FOR PREDICTING SUPERORDINATE AND SUBORDINATE ROLE BEHAVIORS

(Sweney, 1970)



Response to Power Role Model:

In management and organizational theory considerable emphasis is being placed upon management styles and the work environment. Whereas the literature is glutted with research and speculation concerning how a superior should behave, very little had been reported concerning subordinates, and the interaction between superiors and subordinates is entirely missing. In order to remedy this void, the investigator has developed a model for viewing the interactions between superiors and subordinates. This model suggests that most of the interactions between individuals are functions of a learned role rather than any innate personality and that individuals try to cope with the exigencies of their jobs by modeling themselves after others who they perceive have functioned adequately. The lack of design and form to this task gives rise to confusion concerning appropriate behavior and the ambiguity is structured by the basic value systems held by the individual.

In our culture there seems to be a major second-order value involving the appropriateness of aggression vs love. A view of history shows the swaying of a very delicate balance between these two systems for evaluating behavior. The supportive value includes love values, feminine values, intellectual values, civilized values, and general social values. The confrontive value system includes aggression, dominance, inordinate achievement needs, savagery, masculinity, and physical expression. As our culture has progressed, we have become more feminized, more civilized, and more intellectualized. In business and highly structured organizations, however, there has come reinforcement for the more regressive confrontive value systems. The male, particularly, is in conflict because he has to make choices between the confrontive values of his sex and the feminizing values of his culture.

In the dynamic changes which are revolving in our culture, it is not surprising that prescribed roles and activities are not only difficult to discover but would probably be disfunctional were they to be institutionalized. The Response to Power Role Model suggests that this confusion leads to different behavior from different people depending whether they are in a position of power or a position of being overpowered, i.e., is being a superordinate or being a subordinate. A confrontive super-ordinate behaves in an authoritarian way, a supportive superordinate is usually permissive. The ideal solution involves neither a supportive nor a confrontive role but basic rationality. The equalitarian, hence, is seen as employing neither the coercion of the authoritarian nor the seduction of the permissive, but the rational objectivity associated with an open systems approach to his task.

The subordinates occupy a comparable role; the confrontive subordinate is identified as the rebel; the supportive subordinate is the ingratiator or pleaser; and the objective rational subordinate is the cooperator-critic.

Since all six of these classifications are roles rather than types; every individual expresses to some degree all six. The model explains the practical behavior of the subjective superior who vacillates from permissiveness to authoritarian. It also identifies the submissive subordinate who suppresses his inner feelings of rebellion in order to become a yes-man with his boss.

Figure 2 gives another view of the model which incorporates the objective subjective dimension. Most of the theories up to this time have implied that the manager's (or teacher) function was to manipulate the behavior of his subordinates. Even the proponents of motivation theory lasp into phrases such as "motivating employees", "helping them work", "making them want to work", etc. Each of these statements when viewed objectively suggests "Theory X" manipulative philosophies.

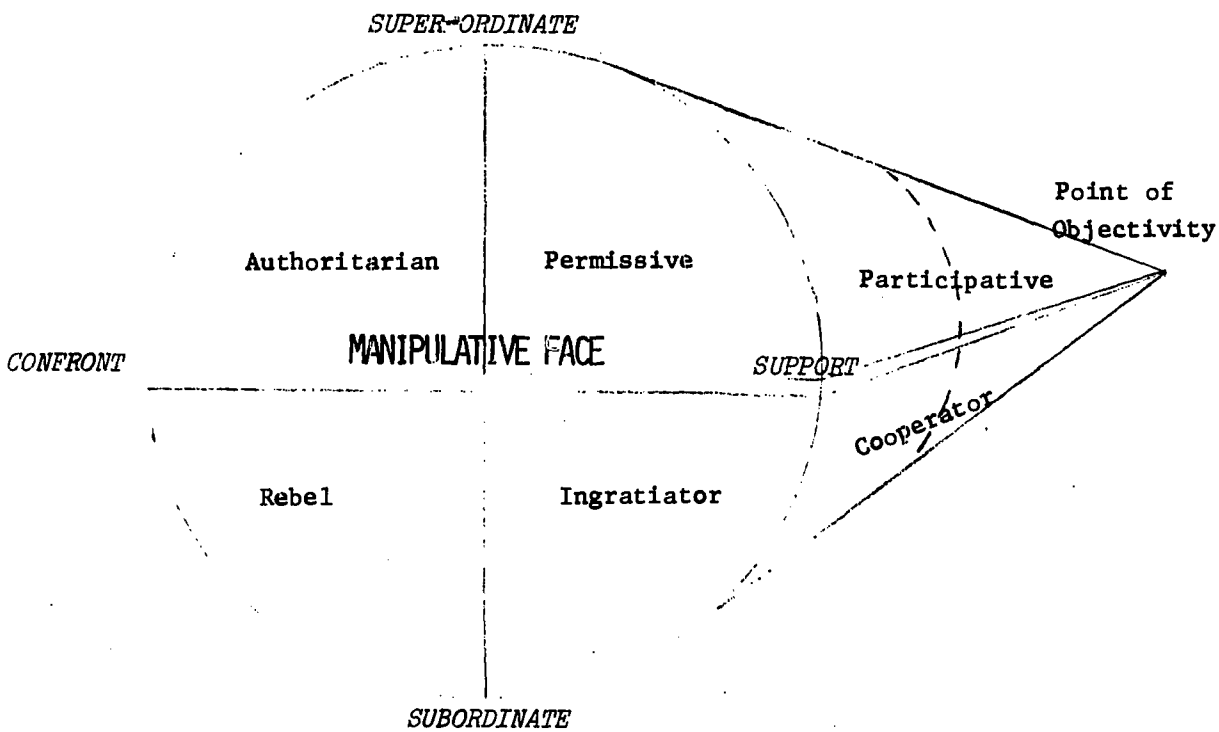


Figure 2. Three Dimension Response to Power Model

The model has particular implication for the educational process. The eacher and professor have traditionally been viewed not only as superordinates but highly authoritarian ones. The pupils and students have traditionally occupied subordinate roles with constant reminders that they are being overpowered not only by stronger adults, but also the weight of unlearned knowledge. Teachers have learned in their college training how to manipulate their pupils more effectively. They also must be confused by the conflict between the supportive roles which they learned in colleges of education, and the confrontive roles which are preached by the older teachers when they enter the school environment. Because of the basic functionality of the equalitarian role, very often the teacher who becomes enthusiastic about the interactive process with her students forgets to worry about whether to manipulate them supportively or confrontatively. In this way many teachers arrive at appropriate behaviors by disregarding both their formal training and other teachers. The role model suggests that successful teachers and successful students will operate in the equalitarian-critic mode.

This model when viewed from a systems approach is an open system. Less successful modes of operation would include the authoritarian-ingratiator relationship and the permissive-rebel relationship. It seems very likely that many of the campus difficulties seem to emerge as natural consequences from a permissive society. Case records show rather conclusively that college rebels operate most effectively when the university administration is permissive. Their family backgrounds also show a predominance of indulgent, middle-class parents.

The student conflict over appropriate roles must be just as difficult as the teachers. He enters college with established expectations which are sometimes confirmed but often disavowed by his professors. His peer group repeats cliches but have little insight into the dilemma of the situation of which they are apart. This confusion and conflict generates differences of opinion that creates variance which should be meaningfully related to the underlying value systems. This is a fertile area for the measurement of individual differences. The student roles probably corresponds to the subordinate roles of the Response to Power Model. Those students who perceive that the objectives of education can be achieved through the manipulation of teachers and the administration operate in the rebel and ingratiating roles. These roles are inadvertently reinforced by the professor's own behavior. Most students, however, operate to some degree in the objective role of the cooperator and direct their actitivies toward the task at hand instead of manipulating their instructors. It would be expected that the manipulators would tend to be less satisfied with their curriculum, in general, because of their tendency to project their hostilities. The cooperator, however, would evaluate himself as he evaluated the program and would tend to maintain a more positive outlook on the entire educational process.

Purpose of the Investigation:

The investigation described in this report was conducted to further clarify how the expectations of students interrelate with their evaluation of their professors and their satisfaction with their course of study. The major variable on which the student body is segmented is the degree to which they prefer an open system or a closed system. It is also concerned with the superior-subordinate role interaction of student and teacher, although this facet remains incomplete since no effort was made to measure superior role preferences of teachers and this facet can only be inferred from student interactions.

A specific purpose was satisfied by the study to determine whether a particular program was populated by individuals with particular academic philosophies. The three masters degree programs in Business were of particular interest since their requirements and faculty varied considerably in implicit educational philosophies. At different points of this study this variance in philosophy is identified as "institutional authoritarianism".

Another purpose of the study has been to validate an instrument developed to measure expectations, The Learning Environment Measure (LEM). This instrument in previous studies was found to measure ten dimensions of student expectations. As such, it could have considerable value in objectifying the problems encountered in educational settings.

It is difficult to discover "true" feelings concerning professors because of the highly engrained tendencies to censor or distort. An unobtrusive measure of students identification with the professor was developed and applied to determine its relationship to general expectations.

CHAPTER II

METHODOLOGY

This study was exploratory, applying a relative new model for superordinate and subordinate roles, and exploring expectations and value systems used by students for evaluating their learning experience. Because of its exploratory nature, a large number of variables were used. This required the development of a basic strategy for information reduction and simplification over and above those normally utilized in statisticial analysis. The strategy selected was to study the nature of the experimental instruments in packages. Since their basic factorial structure was unknown at the beginning of this study, a preliminary factor analyses was applied individually to each of the various instruments. A factor analysis was eventually conducted to disclose the nature of the interactions between instruments.

Subjects

The initial question which stimulated this research was whether or not three basic graduate programs in the Department of Administration constituted three separate populations of graduate students. As a result, the preliminary study was composed of 117 graduate students from the Department of Administration. Of the sample, 44 were enrolled in the highly structured M.B.A. Program; 53 were from the loose but research-oriented M.S. Program without a thesis; and 20 were enrolled in the M.S. Thesis Program. The second sample was drawn from the undergraduate and graduate population of the following Fall semesters and included 83 undergraduates in Business, 32 M.B.A. graduate students, and 26 M.S. graduate students in Business, 36 undergraduates in Psychology, and 33 undergraduates in Education. These subjects were selected to provide variance in relation to general attitudes concerning the Educational Process, but in general, included students who had completed or nearly completed their undergraduate degrees. Since many of those questioned reflected a backward view upon their educational programs, the subjects were selected from classes of teachers who were by and large favorably disposed toward goals of this kind of research and has probably represented a somewhat biased sample when compared to upperclassmen in college as a whole.

Instruments

The instruments employed in this research appear in the appendix and represent a wide variety of measures in the values and attitude realm. Their major focuses are toward student expectations, general role preferences and evaluations of courses and programs in which they have been involved.

Learning Environment Measure (LEM): This instrument was developed by the principal investigator and the principal consultant for this project to measure various aspects of the value for structure versus the value for openness. The items were generated to allow the subjects to select statments which best described their ideal teacher as well as to prescribe behaviors which were functional for students. The 76 items selected for this instrument were conceptually different but in general appeared to measure this dimension of desire for structure within the student population.

The Tolerance for Ambiguity Tests (ATS); The ATS involved sixteen items developed by Rydell and Rosen (1966). It is purported to measure the degree in which persons view situations in black or white and the degree to which they seek closure when the information is not complete. This is purported to be a single-factored instrument but the investigator had sufficient questions concerning its purity that it was one of the preliminary measures which was factored by items to ascertain its factor-complexity.

Dogmatism Scale (MRS): The Dogmatism Scale developed by Milton Rokeach was abridged by Troldahl and Powell to include only twenty of the original forty items. This scale is purported to be a factor-pure scale, although again the heterogeneity of the face content of the items made it appear doubtful. The items from this instrument were used as part of the pool for deriving new factors for describing dimensions of close-mindedness.

Response to Power Measure, Form A,(RPM): This instrument was developed by Sweney (1969) to measure subordinate and superordinate role preferences. Form A is one of the earlier versions of the test developed to measure six roles defined by the RPM Model, i.e., the authoritarian, equalitarian, permissive, rebellion, cooperator, and ingratiator. The first three are superordinate roles and reflect the value assumptions relating to the conflict over the appropriateness of confrontive behavior as opposed to supportive behavior in a superordinate relationship. The equalitarian role is seen as the third option involving rationality rather than manipulation and hence has generally been accepted in management philosophy to be the most appropriate of the three. The subordinate roles are an invention of this particular instrument since they have not been discussed in the psychology or management literature. They also involve the conflict of the appropriateness of confrontive and supportive behaviors where the rebel favors coercion and the ingratiator favors submission as means for influencing the behaviors of their subordinates. The test is constructed with sixteen items to measure each of the six roles. The sixteen items constitute general attitude statments to which the subject is requested to label as either true or false with the option of selecting a middle "questionable" area if he finds it impossible to decide. An effort has been made to present all six roles in a socially desirable light and this particular form of the test has the weakness of having the scales disproportionately weighted toward "yes" responses.

ANALYSES

The analysis of the research proceeds in two major phases. The first phase involves factor analyses of the preliminary instruments and analysis of variance involving the graduate programs in which students were enrolled, and the degree of satifaction which they experienced with their programs. The second phase involved intercorrelations and master factor analyses of the derived factor scales and the other unanalyzed data. These analyses involve the larger and more varied sample.

Factor Analyses:

Since the preliminary factor analyses on the LEM, on the Semantic Differential Scales and on the Intolerance Scales were conducted to determine the number of independent dimensions represented in each of the instruments an orthogonal rotation was selected. Varimax by Kaiser (1959) has been considered one of the best orthogonal rotations available for general consumption. It is, however, sometimes unable to properly distribute the variance in the first general factor. This tendency was difficult to avoid or to identify in the analysis made because in each case the large first factor could be expected, based on the high homogeneity of the items being analyzed.

Analysis of Variance:

Because of the limited size of the samples, two-factor analyses of variance were used in studying various variables of satisfaction involved in the graduate programs in Business. The hypotheses suggested a possible interaction between the satisfaction with ones program and the various measures of rigidity, dogmatism, or intolerance for ambiguity. For this reason the two-factor analyses of variance were required in order that the interaction term could be scrutinized. T-tests were conducted to study the significance of differences between cell means. These have been omitted in the interests of brevity but can be inferred from the general magnitude of the differences between means and of the F-ratios presented.

Intercorrelations Matrices:

The intercorrelation matrices are intermediate steps in the factor analysis process. They do, however, contain a great deal of important material and can be given levels of significance which is impossible to clearly define for factor loadings.

For these reasons, numerous intercorrelations have been tabulated for direct inspection, especially those involving direct questions and factor scales. With a sample of two hundred ten samples, an intercorrelation need not explain a large proportion of the variance to be statistically significant.

Varimax Master Factor Analysis:

The Varimax rotations were applied to principal component factor extraction. Orthogonal rotations are viewed by many multivariate scientists as defining independent but highly abstract dimensions. The factors obtained are thus artificial entities which have special locations and identifications due to the variable context in which they are located. They do, however, because of their independence have the potentiality of locating in a general way the sources of variance for any of the variables being analyzed. Therefore, the tables in which the Varimax loading has been converted to percentages after each variable has been extended to a unit vector length. This process has particular advantage when novel variables are being studied such as those derived from the instruments used in this particular study.

Oblique Master Factor Analysis:

Two different oblique rotation strategies were used for the master analyses. The promax methods developed by Henderson and White (1964) utilizes the target rotation method developed by Cattell (1960) in his Procrustes Solutions. It starts with the Varimax rotation raised to a fifth power as a target and iterates from that point forward until no appreciable improvement is obtained in the fourth powers of the loadings. The maxplane rotation was developed by Cattell and Muerle (1962) and replicates very closely the methods used in hand rotation. It is analytical and terminates itself when the increase in absolute values of the loadings become small. It maximized the hyperplane count and thus tends to minimize some of the absolute values of the loadings in the vector structure. The factors obtained by maxplane thus will have lower loadings than those found in promax but will be more accurately located in factor space.

Table 1

List of variables in Master Factor Analysis - Varimax and Oblique

Variable Number	Short Title
1	LEM 1: Structured Simplicity vs Unstructured Complexity
2	LEM 2: Professor Control
3	LEM 3: Evaluation Phobia
4	LEM 4: Professor Superiority
5	LEM 5: Participative Learning
6	LEM 6: Moralistic Evaluation
7	LEM 7: Student-Professor Polarity
8	LEM 8: Creativity Individualism
9	LEM 9: Professor Discussion Leader
10	LEM 10: Identification with Professor
11	Overall Program Evaluation 1: Valuable vs Worthless
12	OPE 2: Open vs Closed
13	OPE 3: Order vs Chaos
14	OPE 4: Dynamic vs Static
15	OPE 5: Innovative vs Traditional
16	OPE 6: Synthesize vs Memorize
17	Outside Reading
18	Outside Reading time compared to Others
19	Faculty Interaction
20	Faculty Interaction Compared to Others
21	Student Interaction
22	Student Interaction Compared to Others
23	Clearer Personal Objectives
24	Clearer Career Objectives
25	Enroll for Job
26	Enroll for Profession
27	Enroll for Graduate Program
28	Enroll for Self-Improvement
29	Enroll for Social Status
30	Change Objective Since Enrollment
31	Enroll in the Same Porgram Again
32	Intolerance Scale 1 : Single-Mindedness
33	Intolerance Scale 2: Paratiaxic Distortion (Dichotomization)
34	Intolerance Scale 3: Self-justification
35	Intolerance Scale 4: Simplification
36	RPM C - Cooperator-Critic
37	RPM I - Ingratiator-Pleaser
38	RPM R - Rebel-Crusader
39	RPM Q - Equalitarian-Participator
40	RPM A - Authoritarian-Dictator
41	RPM P - Permissive-Missionary
42	Avg. Crs. Evalu.-Valuable, Interesting (vs worthless, boring)
43	Avg. Crs. Evlu. - Synthesize vs Memorize
44	Identification with Faculty - perceived similarity
45	Program: Education-undergraduates vs Business grad.
46	Undergraduate = o; Graduate = 1

CHAPTER III

RESULTS

The results from this study can be summarized under two major headings, the preliminary analyses and master analyses. The preliminary analyses has been directed towards structuring the instruments to be used and in answering specific questions concerning the greduate questions of the School of Business. The master analyses are directed toward a larger and varied population and directs its inquiry toward how the derived factor scales from the preliminary analyses are interrelated and associated with the other demographic variables in this study. The preliminary analyses were conducted on an hundred seventeen graduate students from the School of Business. The master analyses included graduate students from Business, undergraduate students from Business, From Psychology, Education and Liberal Arts.

Preliminary Analyses

Four separate analyses were conducted upon the preliminary data. The Learning Environment Measure (LEM) were factored to yield ten factors. The Semantic differential scales which constituted the Overall Program Evaluation (OPE) form were factored to yield six basic scales. The Dogmatism Scales and the Tolerance for Ambiguity Scales were factored together because of the similarity of intent from both instruments. An unexhaustive analysis of variance was conducted exploring various combinations of two variables to ascertain their influence upon satisfaction as measured by overall program evaluation.

The Learning Environment Measure (LEM) Factor Analyses: The LEM, Form A, is composed of 76 items answered on a true-false scales, based upon Wrigley-Kiell criterion. The solution yielded 10 orthogonal factors. Because of the general positive manifold used in variable selection, an orthogonal rotation was used to determine as much as possible independent factors. As would be expected, a high proportion of the variance appeared on the first factor which was identified as Closed Simplicity. However, the remaining nine factors were sufficiently loaded by variables to be identified but also represented important but more subtle aspects of the learning encounter.

The Learning Environment Measure (LEM) was constructed to measure the need for closure within a higher educational environment. The items were presented as attitudes to be responded to on a Likert type scale from strongly agree to strongly disagree. The constructors were particularly concerned about measuring student expectations and student perceptions of their professors and program.

The items were all original and no a priori subdivisions were considered. The authors were guided by a model which presumes that certain students have a closed systems approach to education in which a transfer of knowledge takes place from the professor to the student with no net gains being made in the transaction. The investigators perceive that a more productive education consistent with management principles would be that in which information is generated through the transaction and both the student and teacher leave the classroom better educated. Either covertly or overtly many of the items thus measure this view.

The LEM was administered to 117 graduate students along with the other evaluation instruments. The responses to the seventy-six items were punched on IBM cards and were factored analyzed with principle components extraction and a Varimax rotation. Based on Wrigley-Keill criteria, the solution yielded ten factors. After the rotation, these factors seemed to define relevant dimensions of students' attitudes toward their educational environment.

Table 2 - Factor 1, Closed Simplicity vs Open Complexity

	Variable	Loading
63	A good student takes notes that accurately reflect what is said in lectures	.7539
18	A good professor lectures from well prepared notes	.6977
13	I don't like to end up confused after class	.6237
52	A good professor takes the time to make up an objective exam	.6179
64	A good professor presents his material so that a good student's notes are about the same as his	.6161
38	I like to completely understand what I've learned from a class	.5996
20	A good student has a complete set of notes	.5638
36	I like to know exactly how my grade will be calculated	.5296
12	I like exam questions to have a clearly right or wrong answer	.5094
10	I like a professor who is a conscientious grader	.4750
40	I think a professor should have a dynamic presentation	.4725

61	A good professor spends considerable time determing grades accurately	.4610
75	I like a professor who talks a little bit above my head much of the time	-.4527
11	A good professor insists that his students keep up	.4432
66	I don't have a lot of respect for a professor who backs down very often	.4107
9	I don't like a professor to stray from his topic	.3828
30	A good student has clearly specified long ranged career goals	.3816
48	I like it when a professor makes an ambigious assignment	-.3477

Factor one was identified with the "open-closed system" which the authors had hypothesized. It seems to reflect the degree to which the students need closure and perceived the transaction to be a closed one as opposed to valuing the more open system. This factor might be tied with personality trait of compulsiveness and orderliness. It assumes that the professor's knowledge is transmitted to the student in an undistorted form.

Table 3 - Factor 2, Professor Control

Item #		Loading
70	A good student realizes the importance of the requested courses in his program	-.5012
47	I don't like professors to be critical of the text	.4954
17	A good professor is excited about his course material	-.4826
76	I like a professor who is about to hold off students' questions till near the end of class	.4724
62	A highly competent professor does not learn a lot from his students	.4643
55	A good professor is not abstract in his thinking and presentation	.4151

Factor two has been identified as a "professor-control factor". it reflects the degree which a student perceives the necessity of the professor to control the student's classroom behavior, and the degree to which the professor exercises control over his own behavior. This was not a hypothesized dimension and its lack of representative items probably reflects the lack of uniformity in item generation.

Table 4 - Factor 3, Evaluation Phobia

Item #	Variable	Loading
39	A good professor doesn't like grading students	.7185
29	I like a professor who doesn't care much about grades	.6233
14	I like a professor who doesn't given examinations	.5948
67	If the educational system functioned ideally, there would be no need for examinations	.5802
28	I don't like professors who ask too much of students	.4781
72	The better the professor, the harder it is to get a good grade in his course	-.4357
10	I like a professor who is a conscientious grader	-.4039

Factor three has been identified as an "evaluation phobia" and reflects the wide variability of a student population in their attitudes toward the process and values of external evaluation. Some of the less highly loaded items suggest that this avoidance of evaluation may have some roots in dispersed motivation and fear.

Table 5 - Factor 4, Professor Superiority

Item #		Loading
35	A good professor tends to dominate class discussion	.6201
43	I feel satisfied when I've learned what a professor knows	.5981
51	I like a professor who is clearly superior to his students	.5351
45	I' ve had my fill of group projects in courses	.4808
50	I dislike classes where students ask a lot of silly questions	.4735
31	If a professor lets the students run the class, he is lazy	.3497

Factor four can be identified as a "professor superiority" or "authoritarianism scale. It describes the need which some students possess for defying the professor and subordinating the students. This carries along with it a certain tolerance for contribution from fellow classmates.

Table 6 - Factor 5, Participative Learning

Item #		Loading
26	I like to respond to questions raised in class	.7775
15	I like to ask questions	.7044
59	A good professor does not spend a lot of time testing his own specualtions in class	-.3814
8	I get my kicks from finding new ways of looking at old problems	.3756

Factor five has been identified with a "participative learning" environment in which the student seeks to overtly interact with his professor and other students, and in which the professor is perceived as testing speculations with the aid of his students.

Table 7 - Factor 6, Moralistic Evaluation

Item #		Loading
60	A good student does not fill up the margins of books when he reads them	.6137
25	I don't like to see a professor smile in class	.5742
2	I think a professor should be well dressed	.4798
76	I like a professor who is able to hold off questions of student's till near end of class	.4606
5	A professor's off-campus behavior should be exemplary	.4426
21	A good professor records attendance	.4308
71	I don't like to hear a professor attack the policies of the university	.4272
31	If a professor lets the students run the class, he is lazy	.4207
28	I don't like professors who ask too much of students	.4040
19	I dislike professors who are unpredictable	.3596
23	A good professor realizes that I'm good	.3567

Factor six has been identified with a "moralistic" effort which might be identified in another context as "cleanliness is next to Godliness". It conveys with it moralistic Bible-Belt kinds of value judgment. It places the professor in a religious fishbowl through which his behavior is critically evaluated or censored.

Factor 8 - Factor 7, Student-Professor Polarity

Item #		Loading
22	I don't like a professor who is biased by his own point of view	.5455
65	I don't like a professor who talks about things he does not fully understand	.5006

32	I like a professor who doesn't leave his ideas dangling	.4946
53	A good student decides early the courses he wants in his program	.4592
69	Multiple choice examinations are a big improvement over true-false ones	.4496
73	A good student purposely tries to complicate the issues raised in class	-.4482
4	I like to see overly talkative students shot down	.4457
16	I like professors who do not contradict themselves	.4288
19	I dislike professors who are unpredictable	.4197
59	A good professor does not spend a lot of time testing his own speculations in class	.4171
46	My own solutions to problems excite me	-.4170
24	A good professor clarifies the ambiguities in text materials	.4081
49	I like professors who give facts rather than opinions	.4022
50	I dislike classes where students ask a lot of silly questions	.3775*
30	A good student has clearly specified long ranged career goals	.3713*
2	I think a professor should be well dressed	.3526
55	A good professor is not abstract in this thinking and presentation	.3411*

Factor seven emphasizes the "student-professor polarity". It establishes a zero-sum game in which the professor gains at the student's expense and vice a versa. In this dimension the professor is evaluated from the competency point of view and the student may very well be establishing a basis for rationalizing their poor performance as a result of the teacher's mistakes. A competetiveness with other students is also in this factor suggesting that students perceive themselves as playing a zero-sum game with the other students as well.

Table 9 - Factor 8, Creative Individuality

Item #	Variable	Loading
58	I am happy just understanding problems even when no one knows the answer	.5911
57	I would enjoy a class where I could learn about what ever interested me	.5551
34	I feel good when my questions stump even the professor	.5009
3	I feel a lot smarter now than I did a few years ago	.4781
41	I like professors who just let me "do my thing"	.4262
8	I get my kicks from finding new ways of looking at old problems	.3742
1	A good professor spends a lot of time on his research	.3157
46	My own solutions to problems excite me	.4067

Factor eight has been identified with "creativity" developed from " a high tolerance for ambiguity". The items are those which one would assoicate with the student who is more interested in discovering problems than meeting the solutions. It suggests a need for autonomy and atmosphere in which individual choice is encouraged. Many of the items on this factor have recently been uttered by hippies and "new left" students on many campuses.

Table 10 - Factor 9, Professor Discussion Leader

Item #		Loading
44	Good professors are primarily discussion leaders	.6248
74	My best professors seem to be too busy to discuss things much out of class	.4579
56	A good student takes notes that reflects his thoughts in class	.4458
68	A good professor is just a good student who gets paid for being a student	.4220
42	Essay examinations permit too much subjectivity in grading	.4131
73	A good student purposely tries to complicate the issues raised in class	.3907
7	I don't like to admit to myself I'm confused	.3681
37	I don't like a professor who walks around the class alot	.3563

Factor nine seems to be associated with the question of "professor-student equality". This is less clearly defined or identified than any of the other factors and should be more thoroughly studied with other items before its identification can be securely established.

Table 11 - Factor 10, Identification with Professor

Item #		Loading
33	I would prefer to study under famous men	.6785
6	I like to independently derive answers to general problems	.5233
5	A professor's off-campus behavior should be exemplary	.3524*

* None principle factor

Factor ten is almost too small to be condsidered here, but it seems to reflect the degree to which the students wish to identify themselves with famous professors. It may reflect the process of using the professor as a model with some recognition that they, the students, can ultimately occupy a similar position.

Intolerance Factors

The items from the Tolerance for Ambiguity and the Rokeach Dogmatism Scales were factored with some of the unstructured questions in the evaluation form and eight factors were found of which four could be clearly identified as Intolerance Factors. These factors wer identified as Single-Mindedness, Simplicity Through Parataxic Moralism, Self-Justification, and Simplicity Through Dependence.

Factor One (Single-Mindedness) included a large number of Tolerance For Ambiguity items, but included at least five from the Rokeach Scales. It illustrated the need to blank out some of the complexity of life in order to deal with basic problems. A number of modes of simplification is perceived here. In some cases the subject chooses to analyze instead of simplify. He tends to select secure outcomes opposed to problematic ones. He wishes to finish one task before starting another; he chooses explicit rules as opposed to implicit obligations; he selects a single ideal goal instead of facing the integrating effect of reality, and in general, he seeks simple solutions where none exist.

Table 12 Factor 1, Single-Mindedness

Item #		Loading
11	Nothing gets accomplished in this world unless you stick to the basic rules	.79
27	It is only when a person devotes himself to an ideal or cause that life becomes meaningful	.78
14	If I were a scientist, it would bother me that my work would never be completed	.77
18	I hate it whenever a person stubbornly refuses to that he is wrong	.76
4	I would rather bet 1 to 6 on a long shot than 3 to 1 on a probable winner	-.75
21	Of all the different philosophies which exist in the world, there is probably only one which is correct	.74
1	A problem has little attraction for me if I don't think it has a solution	.70
5	The way to understand complex problems is to be concerned with their larger aspects instead of breaking them into smaller pieces	-.68
22	The highest form of government is a democracy and the highest form of democracy is a government run by those who are most intelligent	.67
10	It bothers me not knowing how others react to me	-.66
12	If I were a doctor, I would prefer the un-	.60

	certainities of a psychiatrist to the clear and definite work of someone like a surgeon or X-ray specialist	
13	Vague and impressionistic pictures really have little appeal to me	.57
20	Most people don't know what is good for them	-.55

Factor Two (Simplicity Through Parataxic Moralism) is primarily loaded by both the remaining Tolerance for Ambiguity items and three dogmatism items. The meaning of the factor seems to be related to simplification through calling upon moralistic averisma and in perceiving human behavior as a simple example of moral and immoral behavior. The tendency to be opinionated is expressed in the tone of the items selected. The unexpected loading of item nine is somewhat puzzling. This may suggest that business graduate students, even closed minded ones, have some conflict at least between right and wrong.

Table 13, Factor 2 - Simplicity Through Parataxic Moralism

Item #		Loading
10	Man on his own is a helpless and miserable creature	.76
9	I have always felt that there's a clear difference between right and wrong	-.75
25	Most of the ideas which get printed nowadays are not worth the paper they are printed on	.73
19	There are two kinds of people in this world: Those who are for the truth and those who are against the truth	.71
7	Practically every problem has a solution	.62
16	The best part of working a jigsaw puzzle is putting in the last piece	.61
3	There's a right way and a wrong way to do almost everything	.59
6	I get pretty anxious when I'm in a social situation over which I have no control	.57
15	Before an examination, I feel less anxious if I know how many questions there will be	.56

Factor Three (Self-Justification) seems to reflect an egotistical base for making evaluative judgments. It suggests that close-minded people have difficulty in perceiving any other reference group but themselves. It involves only dogmatism variables and, hence, represents a dimension which differentiates Rokeach's dogmatism from Tolerance for Ambiguity.

Table 14, Factor 3 - Self-Justification

Item #		Loading
35	Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups	.67
33	In a discussion I often find it necessary to repeat myself several times to make sure I'm being understood	.61
29	To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side	.54

Factor Four (Simplicity Through Dependence) is not primarily loaded. This genera of variable does provide a different interpretation of how close-mindedness can be maintained in a complex stimulus field. It implies an expectation of leadership from others, and a plaintive expression of distress that leadership is seldom forthcoming. It expresses one stage of the arising suspicion which is generated by overly high expectations of ones own performance and the performance of others.

Table 15, Factor 4 - Reliance on Strong Leadership

#		Loading
17	In this complicated world of ours the only way we can know what's going on is to rely on leaders or experts who can be trusted	.58
8	It bothers me when I unable to follow another person's train of thought	.50
10	It bothers me when I don't know how other people react to me	.48
2	I am just a little uncomfortable with people unless I can understand their behavior	.46
30	It is often desirable to reserve judgment about what's going on until one has had a chance to hear the opinions of those one respects	-.35

Overall Program Evaluation Factor Analysis

The six factors distilled from the semantic differential scales have been identified as Overall Program Evaluation Factors (OPE). They include a general evaluation factor, a factor measuring openness and closeness, order and chaos, planning vs haphazardness, need for variety and subtlety. These factors contain numerous cooperative scales and, hence, would probably more accurately be represented by oblique factors than the orthogonal ones which were required.

Factor One (Valuable vs Worthless) was primarily an evaluative factor in which the more traditional methods of evaluating a class was found. It equated difficulty with scholarship and seems to praise traditional values. One exception seems to be the inclusion of interest, suggesting that the subject perceived that deep and hard subjects do not have to be boring.

Table 16 - Factor 1, Valuable vs Worthless

Item #	Variable	Loading
14	deep vs shallow	.71
13	hard vs easy	.70
21	interesting vs boring	.59
18	valuable vs worthless	.57
22	bold vs timid	.56
11	scholarly vs pedestrian	.53
27	bad vs good	.49
20	play vs work	-.43
1	dynamic vs static	.42
5	humorous vs serious	-.36
4	accidental vs deliberate	-.35

Factor Two (Open vs Closed) included those variables which are particularly related to the open system of teaching such as friendly, flexible, open, informal, synthesize, and innovative. This factor orthogonality to the first factor suggests that in the student's evaluation process does not need to be either negatively or positively correlated with worth.

Table 17 - Factor 2 - Open vs Closed

19	friendly vs hostile	.75
9	flexible vs rigid	.73
26	open vs closed	.72
25	autocratic vs democratic	-.69
16	fair vs unfair	.62
6	formal vs informal	-.60
7	synthesize vs memorize	.59
3	loose vs tight	.55
15	innovative vs traditional	.47

Factor Three (Order vs Chaos) emphasized the need for a clear definition of direction and associated many theoretical and abstract aspects of order with chaos.

Table 18 Factor 3, Order vs Chaos

Item #	Variable	Loading
2	theoretical vs practical	-.61
17	abstract vs concrete	-.54
8	hazy vs clear	-.52
10	chaotic vs orderly	-.46
27	bad vs good	.41
21	boring vs interesting	.38
18	worthless vs valuable	-.35

Factor Four (Planned vs Haphazard) is somehat more difficult to interpret but seems to reflect the intentions of the professors in their efforts to present their materials. The deliberate orderly approach is perceived to be most valuable even though it might be free from some of the humor they would like. This factor should also interact with the Tolerance for Ambiguity factors.

Table 19 - Factor 4, Planned vs Haphazard

Item #	Variable	Loading
4	deliberate vs accidental	.72
12	honest vs dishonest	.63
10	chaotic vs orderly	-.59
11	pedestrian vs scholarly	.57
5	humorous vs serious	-.56
16	fair vs unfair	.47
27	bad vs good	-.44
8	clear vs hazy	.43
1	static vs dynamic	.40
18	worthless vs valuable	-.35
20	work vs play	.35

Factor Five (Reliability vs Variety) contains only two primary loadings it, represents another independent dimension for consideration. It is almost free of evaluative connotations but does suggests that variety is worth considering.

Table20 - Factor 5, Need for Variety

Item #		Loading
23	varied vs repetetive	.55
15	innovative vs traditional	.48
1	static vs dynamic	-.33

Factor Six (Subtlety) contained only one primary loading, however, the two secondary ones emphasized an area of expectation some times confused with orderliness. Students expected to be exposed to obvious facts in their day to day existence, therefore, anticipated learning about the more subtle aspects in their academic experience.

Table 21 - Factor 6, Subtlety

Item #		Loading
24	obvious vs subtle	-.49
17	abstract bs concrete	.41
7	synthesize vs memorize	.37

Analysis of Variance Tables

Analysis of Variance of Student Satisfaction: In the Analysis of Variance I, The students are divided by the degree of their dogmatism and the program in which they belong, and the overall program favorability serves as the dependent variable. The program in which they belong was significant to the .001 level but dogmatism was unrelated.

Table 22 Analysis of Variance I

A. Analysis of Variance Summary

Source of Variation	df	M. S.	F	p
Institutional Authoritarianism	2	56.38	5.74	.01
Dogmatism	1	.01		
Interaction	2	16.82	1.71	.20
Error	103	9.82		

B. Cell Means and T-Test of Simple Effect Differences

	Institutional Authoritarianism								
	High (.M.B.A.)			Medium (M.S.)			Low (M.S.[T])		
Dogmatism	Mean	(N)		Mean	(n)		Mean	(n)	
Low	(A) 3.19	(11)	(B)	4.45	(32)	(C)	4.72	(15)	
High	(D) 3.85	(15)	(E)	4.12	(24)	(F)	4.27	(12)	

In the Analysis of Variance II, the dependent variable was the average individual course favorability. The students were again classified by the graduate program and by dogmatism. The overall favorability was again related to the program in which they were enrolled but not to dogmatism.

Table 23 Analysis of Variance II

A. Analysis of Variance Summary

Source of Variation	df	M.S.	F	p
Institutional Authoritarianism	2	31.29	5.49	.01
Dogmatism	1	2.77	--	--
Interaction	2	.46	--	--
Error	101	5.70		

B. Cell Means and T-Tests of Simple Effects Differences

	High (M.B.A.)		Medium (M.S.)		Low (M.S.[T])	
Dogmatism	Mean	(n)	Mean	(n)	Mean	(n)
Low (A)	3.88	(10)	(B) 4.59	(31)	(C) 4.83	(15)
High (D)	4.07	(15)	(E) 4.12	(25)	(F) 4.70	(11)

In the Analysis of Variance III, the dependent variable evaluation of their program on the open-closed semantic scale. The students were again divided by the program and the degree of dogmatism. Their descriptions were distinctly related to their program at the .001 level indicating that the description of their program was more precise than their personal evaluation. This reflects the investigator's supposition that some students perceive the closed system to be good while others perceive the open system to be better. An interaction was found here and is plotted in figure .

Table 24 Analysis of Variance III

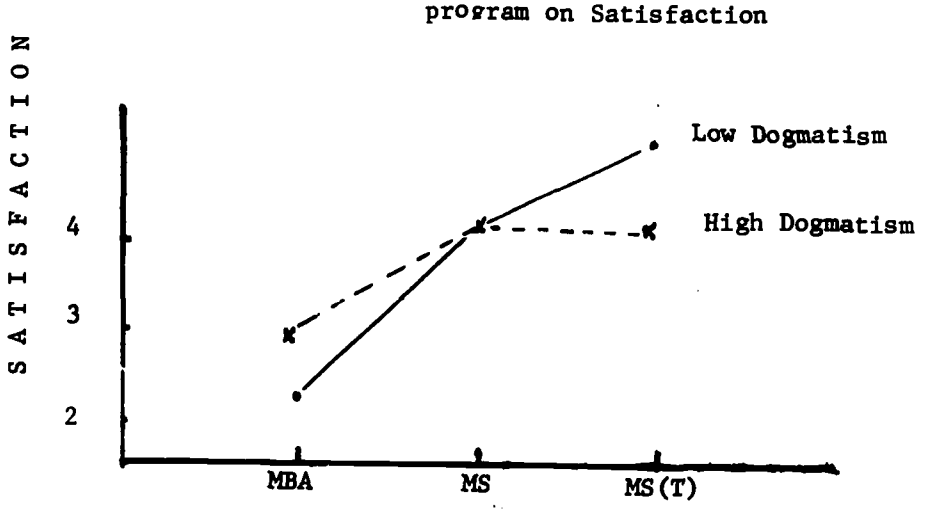
A. Analysis of Variance Summary

Source of Variation	df	M.S.	F	p
Institutional Authoritarianism	2	158.74	33.34	.001
Dogmatism	1	.35	--	--
Interaction	2	22.81	4.79	.05
Error	102	4.76		

B. Cell Means and T-Test of Simple Effects Differences

	Institutional Authoritarianism								
	High (M.B.A.)			Medium (M.S.)			Low (M.S.[T])		
Dogmatism	Mean	(n)		Mean	(n)		Mean	(n)	
Low	(A) 2.33	(10)	(B)	4.02	(32)	(C)	4.65	(15)	
High	(D) 2.92	(15)	(E)	4.03	(24)	(F)	3.90	(12)	

Figure 3: Interaction of Dogmatism and Graduate program on Satisfaction



The Analysis of Variance IV is similar to Analysis One except the students are split by Tolerance for Ambiguity instead of Dogmatism. This drastically reduced the significance of the institutional authoritarian factor and did not contribute a main effect itself. This suggests that either the Tolerance for Ambiguity test as originally measured is less reliable as the Dogmatism scale or that it is measuring something which is irrelevant to the methods in which students evaluate their programs.

Table25 - Analysis of Variance IV

A. Analysis of Variance Summary

Source of Variation	df	M .S.	F	p
Institutional Authoritarianism	2	46.85	3.53	.05
Dogmatism	1	.24	--	-
Interaction	2	24.79	1.87	.20
Error	102	13.28		

B. Cell Means and T-Test of Simple Effects Differences

	Institutional Authoritarianism								
	High (M.B.A.)			Medium (M.S)			Low(M. S. [T])		
Dogmatism	Mean		(n)	Mean		(n)	Mean		(n)
Low (A)	3.14		(10)	(B)	4.53	(27)	(C)	4.64	(20)
High (D)	3.19		(17)	(E)	4.09	(29)	(F)	4.18	(5)

Analysis of Variance V is similar to Analysis of Variance 2 with the exception of Tolerance for Ambiguity has been substituted for Dogmatism as a means of segmenting the student categories. Again the institutional authoritarianism has been reduced by this substitution, and the Tolerance for Ambiguity does not prove to be a significant factor in the individual course evaluation.

Table 26- Analysis of Variance V

A. Analysis of Variance Summary

Source of Variation	df	M. S.	F	p
Institutional Authoritarianism	2	24.80	3.42	.05
Tolerance for Ambiguity	1	5.88	--	--
Interaction	2	1.55	--	--
Error	100	7.25		

B. Cell Means and T-Tests of Simple Effects Differences

	Institutional Authoritarianism								
Tolerance	High (M.B.A.)			Medium (M.S.)			Low (M.S.[T])		
For Ambiguity	Mean		(n)	Mean		(n)	Mean		(n)
High (A)	4.00		(9)	(B)	4.59	(26)	(C)	4.74	(19)
Low (D)	3.94		(17)	(E)	4.20	(30)	(F)	4.60	(5)

Analysis of Variance VI is similar to Analysis of Variance 3 with the substitution of Tolerance for Ambiguity for Dogmatism. Even though institutional authoritarianism is found to be related to the open-closed description of their program, at the .001 level, the F ratio had been reduced by a half and hence again it can be concluded that the Tolerance for Ambiguity is a less successful factor than is dogmatism.

Table 27 Analysis of Variance VI

A. Analysis of Variance Summary

Source of Variation	df	M.S.	F	p
Institutional Authoritarianism	2	120.02	14.64	.001
Tolerance for Ambiguity	1	6.07	--	--
Interaction	2	26.66	3.62	.05
Error	101	8.20		

B. Cell Means and T-Tests of Simple Effects Differences

		Institutional Authoritarianism					
Tolerance		High (M.B.A.)		Medium (M.S.)		Low (M.S.[T])	
For Ambiguity		Mean	(N)	Mean	(n)	Mean	(n)
High	(A)	2.29	(10)	(B) 4.04	(27)	(C) 4.47	(20)
Low	(D)	2.93	(17)	(E) 3.66	(28)	(F) 3.60	(5)

Analysis Variance VII segments the student population utilizing the results from the intuition test rather than either dogmatism or Tolerance for Ambiguity. As a main factor it was found to be some what more effective than either of the previous two factors, but still was not significant. Institutional authoritarianism was still found to be significant at the .001 level in determing how favorably the students viewed their programs. There were still, however significant interactions between intuition and institutional authoritarianism in effecting the dependent variable.

Table 28 Analysis of Variance VII

A. Analysis of Variance Summary

Source of Variation	df	M.S.	F	p
Institutional Authoritarianism	2	64.42	5.30	.01
Intuition	1	0	--	-
Interaction	2	5.96	--	
Error	92	6.63		

B. Cell Means and T-Tests of Simple Effects Difference

		Institutional Authoritarianism					
Intuition		High (M.B.A.)		Medium (M.S.)		Low (M.S.[T])	
		Mean	(n)	Mean	(n)	Mean	(n)
High	(A)	3.40	(12)	(B) 4.44	(27)	(C) 4.91	(11)
Low	(D)	4.80	(10)	(E) 4.30	(25)	(F) 4.71	(13)

Analysis of Variance VIII segments the students by intuition again but the dependent variable of the study was an average composite of the individual course evaluation. In this context, intuition served as a better isolater of variance than did either dogmatism or Tolerance for Ambiguity. A main effect for the authoritarianism scales of .005 was achieved. Intuition was still not effective either as a main variable or as a source of interaction.

Table 29 Analysis of Variance VIII

A. Analysis of Variance Summary

Source of Variation	df	M.S.	F	p
Institutional Authoritarianism	2	44.12	6.65	.005
Intuition	1	0	--	--
Interaction	2	5.96	--	--
Error	92	6.63	--	--

B. Cell Means and T-Tests of Simple Effects Difference

Institutional Authoritarianism

	High (M.B.A.)		Medium (M.S.)		Low (M.S.[T])	
Intuition	Mean	(n)	Mean	(n)	Mean	(n)
High	(A) 3.66	(12)	(B) 4.44	(27)	(C) 4.91	(11)
Low	(D) 4.08	(10)	(E) 4.30	(25)	(F) 4.71	(13)

Analysis of Variance IX, intuition and authoritarianism are used as main factors to study the open-closed description of the overall program rating. A .001 significance was found for institutional authoritarianism but intuition was not effective either as a main effect or as a source of interaction. In this case, intuition was a better isolator of variance than was Tolerance for Ambiguity but was less effective than dogmatism.

Table 30 Analysis Of Variance IX

A. Analysis of Variance Summary

Source of Variation	df	M.S.	F	p
Institutional Authoritarianism	2	149.26	27.39	.001
Intuition	1	8.57	1.57	
Interaction	2	9.58	1.76	
Error	93	5.45		

B. Cell Means and T-Tests of Simple Effects Differences

Institutional Authoritarianism

		High (M.B.A.)		Medium (M.S.)		Low (M.S.[T])	
Intuition		Mean	(n)	Mean	(n)	Mean	(n)
High	(A)	2.57	(12)	(B) 4.10	(27)	(C) 4.62	(11)
Low	(D)	2.75	(11)	(E) 3.90	(25)	(F) 3.92	(13)

INTERRELATIONS BETWEEN RELATED VARIABLES

The master analysis involves the intensive scrutiny of numerous scales obtained from various measuring devices as well as some of the more directly posed questions in the general evaluation form. The intercorrelations have been explored by groups in order to show the generalized patterns of the interactions among the instruments. This step is particularly necessary to establish significant levels of relationships which would only otherwise be descriptively displayed in other complex factor structures.

LEM Factors and Intolerance for Ambiguity: The Learning Environment Measure yielded a high degree of relationship with the Intolerance Scales. All of the LEM scales except creative individuality were found to be significantly correlated with the four intolerance scales. The most related intolerance scales were the single-mindedness and the most related LEM factor was the primary one of structure vs unstructured. This supports the contention of the investigators that students who were expecting professors to present highly structured lectures were the same students who were showing high dogmatism and high intolerance for ambiguity. The negative loading obtained from Evaluation Phobia and Participative Learning are in the appropriate direction to indicate tolerance.

TABLE 31

Interaction Between LEM Factor Scales and Intolerance for Ambiguity Factor Scales

N = 210

LEM Factors	Single-Mindedness	Dichoto-mization	Self-Justi-fication	Strong Leadership
1. Structured vs unstructured	.418	.354	.249	-
2. Prof. Aloofness	-	.233	.186	-.181
3. Evalu. Phobia	-.202	-	-.164	-
4. Prof. Superiority	.278	.251	.203	-
5. Partic. Learning	-.214	- .160	-.166	-
6. Moralistic Evlu.	.286	.321	.241	-
7. Student-Prof. Pol	.368	.364	.254	-
8. Creat. Individ.	-	-	-	-
9. Prof. Discussion Leader	-	.221	-	-
10. Identification with Professor	-	-	-	-

r = .138; .05 level of significance
r = .181; .01 level of significance

LEM Factors with Superior-Subordinate Roles: The LEM factors were less related to the role factors than had been originally hypothesized and the factorial analysis suggest that the RPM factors as measured by this form are not providing the discrimination which had been expected. The pattern of correlation found significant does suggest valid indications of the relationships which can be expected when these two instruments are more fully developed. For example, professor-superiority is perceived as an important variable by both authoritarian and rebels. Need for structure is deemed helpful by both the pleaser and the permissive. The honest critic is displeased with professor aloofness, but is positively reinforced by participative learning, creativity individuality, and an identification with the professor. The failure of the rebel to be positively related to the student professor polarity dimension is difficult to explain. It can be seen from the general correlations that the critic is the least prejudice of the roles measured.

TABLE 32

Interactions Between Tolerance for Ambiguity and Superior-Subordinate Role Factors

N = 210

RPM Factors	Single-Mindedness	Dichoto-mization	Self-justi-fication	Strong Leadership
Critic	-	-	-	.171
Ingratiator	.169	.189	.169	-
Rebel	-	.145	-	-
Equalitarian	-	-	-	-
Authoritarian	.197	.207	.193	.159
Permissive	.231	-	-	-

r = .138; .05 level of significance
r = .181; .01 level of significance

Superior-Subordinate Factors and Intolerance Factors: The critic and the equalitarian are least intolerant when measured by the intolerance factors. The permissive is even more single-minded than the authoritarian when viewed from this perspective. The authoritarian tends to dichotomize. The correlations show a similar pattern between authoritarian and ingratiator which is hypothesized by the model since these two roles constitute the controlled dimension. It is hypothesized that intolerant people assume the authoritarian superordinate role and the ingratiator the subordinate role. This data would support this contention.

TABLE 33

Interaction Between LEM Factor Scales; Superior-Subordinate Roles from RPM
N = 210

LEM Factors	Critic	Pleaser	Rebel	Qualitarian	Authoritarian	Permissive
1. Structure	-	.289	-	-	.176	.237
2. Professor Aloofness	-.197	-	-	-	-	-
3. Evaluation Phobia	-	-	-	-	-	-
4. Professor Superiority	-	-	.175	-	.299	-
5. Participative Learning	.199	-	-	-	-	-
6. Moralistic Evaluation	-	.171	-	-	-	-
7. Student-Professor Polarity	-	.269	-	.168	.224	.178
8. Creative Individuality	.223	-	.157	-	-	-
9. Professor Discussion Leader	-	-	.218	-	-	-
10. Identification With Professor	.194	-	-	-	-	-

Course Evaluation: Interesting and Valuable vs Worthless and Boring: The evaluation of satisfaction measured by the semantic differential scales applied to each individual course provided fairly strong correlations with scales applied to their program in general. The order of the magnitude of correlations indicate that the semantic factors most related to the individual course evaluation were represented in the following order: dynamic, innovative, order, valuable, and open. Satisfaction with courses measured were only minimally increased clarity to career objectives. The lack of any other clear cut correlations cast some doubt upon the value of the semantic differential scales in the evaluation process. They were too highly correlated with each other and relatively independent of the rest of the variable space. This was illustrated again in the factor analyses which follow.

TABLE 34

Average Individual Course Evaluation by Scales: Interesting and Valuable vs Boring and Worthless

N = 210

Variable #	Variable Title	r	Signif.
43	Average Course Evaluation - Synthesize	.501	.001
14	Prog. Evalu. Factor - Dynamic vs static	.436	.001
15	Prog. Evalu. Factor - Innovative vs trad.	.419	.001
13	Prog. Evalu. Factor - Order vs chaos	.427	.001
11	Prog. Evalu. Factor - Valuable vs worthl.	.372	.001
12	Prog. Evalu. Factor - Open vs closed	.357	.001
24	Career Objective More Clear Now	.173	.05

Individual Course Evaluation(Synthesize vs Memorize: The course evaluation, synthesize vs memorize, exhibited the same high correlations factors but seem to behave in a special with with some of the other variables not correlated with the other course evaluation measure. Identification with professors seems to be highly related to the amount of identification which the student feels with their professors. This is consistent with the concept with integrated knowledge stemming from the interpersonal relationship between professor and student. As it often claimed there is some minimal support for the factor contention. The graduate courses emphasized synethize where the undergraduate course emphasized memorization. The authoritarian seems to favor memorization over snythesis. The permissive RPM scale, however, seems to favor synthesis.

TABLE 35

Average Individual Course Evaluation: Synthesize vs Memorize
N = 210

Variable #	Variable Title	r	Signif.
42	Avg. Crs. Evalu. Interesting, valuable vs boring and worthless	.501	.001
12	Prog. Evalu. Factor - Open vs closed	.382	.001
15	Prog. Evalu. Factor - Innovative vs trad.	.361	.001
16	Prog. Evalu. Factor - Synthesize vs Mem.	.330	.001
44	Identification with Professors	.271	.001
14	Prog. Evalu. Factor - Dynamic vs static	.216	.01
46	Graduate (vs undergraduate)	.214	.01
13	Prog. Evalu. Factor - Orderly (vs Chaos)	.201	.01
40	Authoritarian Scale - RPM	-.197	.01
11	Prog. Evalu. Factor - Valuable vs worthless)	.171	.07
34	Intol. - Self Justification	-.160	.05
26	Enrolled for Professional Reasons	-.150	.05
41	Permissive Scale - RPM	.148	.05

r = .138 ; .05 level of significance
r = .181; .01 level of significance

Willingness to Enroll in Same Program: Willingness to pursue the same academic objective if given an opportunity was found to be significantly related to the other variables. Those students who perceived their personal objectives more clearly defined indicated this kind of satisfaction with their original choice. Students on the education end of the spectrum seemed more satisfied than those students in the School of Business. Other variables related to this measure of satisfaction were: times spent interacting with other students, being a graduate student, spending more time in outside reading. Those who perceived their program closed as opposed to open and those spending more time with faculty members.

TABLE 36

Relationships with Satisfaction with College and Curriculum as Measured by Willingness to Enroll in the Same Program

N = 210

Variable #	Variable Title	r	Signif.
23	Personal Objective More Clearly Defined	.541	.001
24	Career Objective More Clearly Defined	.466	.001
45	Education vs Business	-.426	.001
21	Amounts of time Interacting with students	.412	.001
46	Graduate status (vs undergraduate)	.297	.01
17	More Time Reading Professional Literature	.259	.01
12	Prog. Evaluation Factor -Closed vs Open	-.240	.01
18	More Time Reading than Other Students	.240	.01
44	Identification with Faculty	.218	.01
25	Enrolled for Better Job	-.182	.05
22	Interacting with Students more than Others	.175	
15	Prog. Evalu. Factor 6-Synthesize vs memorize	-.160	.05
16	Prog. Evalu. Factor 5-Innovative vs trad.	-.158	.05
26	Enrolled for Professional Reasons	.147	.05
41	RPM Permissiveness Scale		

r = .138 ; .05 level of significance
r = .181; .01 level of significance

MASTER FACTOR ANALYSIS

Orthogonal Factor Interpretations

Master Varimax Factor 1: This factor primarily included evaluation variables with satisfaction variables all loaded in the same direction. For this reason, it was identified as Satisfaction vs Dissatisfaction. The semantic scales were artifically correlated because an overlap of items when the combined semantic factor scales were developed. This could have drawn the factor into this particular location in variable space. The strong loadings of the course evaluation variables indicate that it is not a pure artifactor. Osgood in his factorization of semantic differential factors always reports an "evaluation factor". This analysis would indicate that this varies significantly (90° in factor space) from the social desirability style as defined by factor 4.

Table 37

Master Varimax Factor 1; Satisfied vs Dissatisfaction

#	Variable	Loading
15	Innovative vs Traditional - OPE 5	.828
14	Dynamic vs Static - OPE 4	.817
12	Open vs Closed - OPE 2	.766
11	Valuable vs Worthless - OPE 1	.740
13	Order vs Chaos - OPE 3	.707
42	Av. Crs. Evlu. - Valuable, Interesting vs B.,W.	.586
16	Synthesize vs Memorize - OPE 6	.566
43	Av. Crs. Evlu. - Synthesize vs Memorize	.475
44	Identification with Faculty	.316

Master Varimax Factor 2: This factor was identified as Closed Simplicity vs Open Complexity. It included some of the LEM Scales and also the first three Intolerance Scales. At a lower level it included the authoritarian and ingratiator Scales. LEM Factor Scale 7 has been identified with the polarization of students and professors in a zero-sum encounter. LEM Factor Scale 1 has been identified with the need for simplification and structure in the learning environment. LEM Factor Scale 6 contains moralistic questions implying the presence of a universal value system which professors follow if moral and reject if immoral. Professor Superiority and Professor Control are also positively loaded on this factor. Evaluation Phobia and Participative Learning are negatively loaded indicating the real alternative available.

Table 38

Master Varimax Factor 2; Closed Simplicity vs Open Complexity

#	Variable	Loading
7	LEM 7: Student Professor Polarity	.755
1	LEM 1: Structured vs unstructured	.710
6	LEM 6: Moralistic Evaluation	.686
4	LEM 4: Professor Superiority	.644
2	LEM 2: Professor Control	.542
33	Parataxic Distortion(Dichotomization) Intol 2	.495
32	Single-Mindedness Intol 1	.475
5	LEM 5: Participative Learning	-.401
34	Self-Justification	.381
9	LEM 9 : Professor Discussion Leader	.376
3	LEM 3 : Evaluation Phobia	-.273
37	RPM I Ingratiator - Pleaser	.241
40	RPM A Authoritarian - Dictator	.217

Master Varimax Factor 3: This factor has been called Integrated Goals vs Confused Objectives because variable 23 and 24 have the highest loadings. The individual obtaining high scores on this factor not only claim to have highly crystalized career and personal goals, but also interact intensively with other students as indicated by variables 21 and 22. If given the chance, they indicate that they would take the same major and the same courses again. Apropos to their taking the same route again, they are moderately satisfied with the value of their program they have taken. They see it as valuable, dynamic, and orderly. By contrast, however, they also see their program as requiring memorization and being basically closed. They do not "identify" with their teachers as operationally measured by the degree to which they perceive their leaders responding to the LEM questions in the same way that they do.

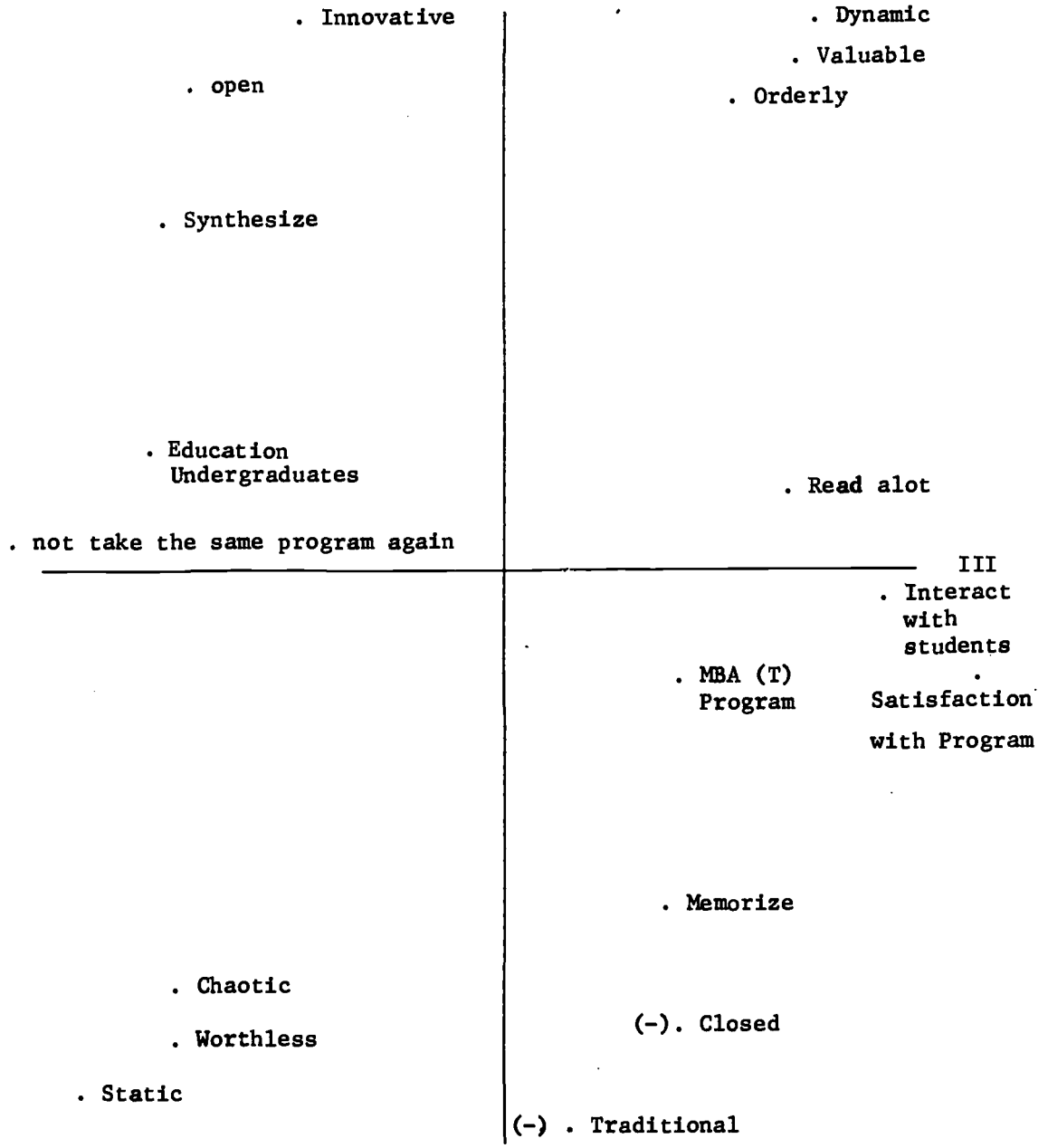
TABLE 39

Master Varimax Factor 3; Integrated Goals vs Confused Objectives

#	Variables	Loading
23	Clearer Personal Objectives	.800
24	Clearer Career Objectives	.729
21	Student Interaction	.669
31	Enroll in Same Program Again	.630
22	Student Interaction	.415
11	Valuable vs Worthless	.354
17	Outside Reading Time	.306
14	Dynamic vs Static	.305
45	Program: Education - undergrad. vs grads.	-.302
16	Synthesize vs Memorize - OPE 6	-.274
13	Order vs Chaos - OPE 3	.269
12	Open vs Closed -OPE 2	-.221
18	Outside Reading Compared to Others	.220
20	Faculty Interaction Compared to Others	.207

Figure 4

A Plot of Evaluation Variables on Master Varimax Factors 1 and 3



Master Varimax Factor 4: This factor includes only Response to Power Measure (RPM) variables. As an instrument factor, an attempt is made to determine what in the construction of the RPM could account for the positive manifold found in scales that are conceptually dissimilar if not negatively correlated. Social Desirability and the "yes-saying" hypothesized is supported by the higher loading of the permissive, equalitarian, and the ingratiator scales. Authoritarian and Rebel are seen by most contemporary subcultures to be socially less desirable. They appear with lower loadings.

Table 40

Master Varimax Factor 4; RPM Social Desirability vs No-Saying

#	Variables	Loading
41	RPM P Permissive - Missionary	.670
39	RPM Q Equalitarian - Participator	.650
37	RPM I Ingratiator - Pleaser	.608
36	RPM C Cooperator - Critic	.575
38	RPM R Rebel - Crusader	.486
40	RPM A Authoritarian - Dictator	.401

Master Varimax Factor 5: This factor is identified as Social Status vs Professional Motives for originally enrolling in college. The negative loadings of Authoritarian and Rebel Scales suggest that professional motives are as seen as being more confrontive than social status. The Intolerance Scale measures the need for the strong but accessible leader; Social Status would therefore be tangential related to an aspiration to attain or associated with this kind of leadership. Variable 19, Faculty Interaction, could also be interpreted in this light.

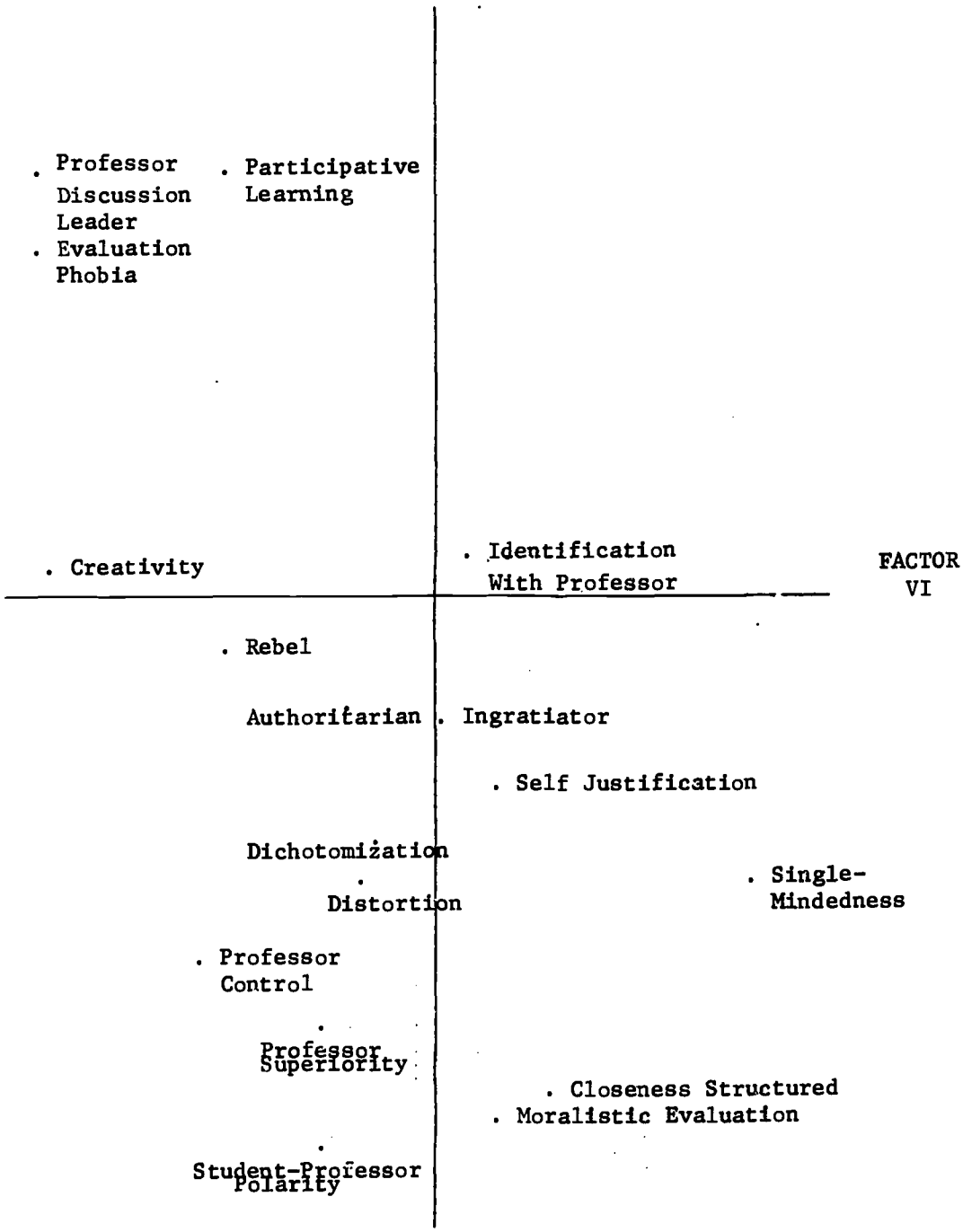
Table 41

Master Varimax Factor 5; Social Status vs Professional Motives

#	Variables	Loading
29	Enroll for Social Status	.822
26	Enroll for Profession	-.611
40	RPM A - Authoritarian - Dictator	-.402
35	Simplification Through Dependency - Intol 4	.304
19	Faculty Interaction	.284
38	RPM R - Rebel - Crusader	-.272
27	Enroll for Graduate Program	-.265
43	Avg. Crs. Evalu. - Synthesize vs Memorization	.217
34	Intol. Scale 3 - Self-Justification	.213

FIGURE 5

Plot of LEM, Intolerance and RPM Variables on Varimax Factors, 2 & 6



Master Varimax Factor 6: This factor is called creative individualism vs Routine Rigor because of the high loadings of the LEM Variables which are measuring this aspect of the learning encounter. These include seeing the good professor as a discussion leader, having an aversion to being evaluated by another person, and a strong desire to act creatively as an individual. Participative learning also loads this factor in the expected direction. The Professor Control factor loads in an unexpected direction suggesting that even the most creative and individualistic students expect some sort of external discipline from his professor.

Table 42

Master Varimax Factor 6; Creative Individual vs Routine Rigor

#	Variable	Loading
9	Professor Discussion Leader	.627
3	Evaluation Phobia	.571
8	Creative Individualism	.546
5	Participative Learning	.340
2	Professor Control	.316
20	Faculty Interaction Compared to Others	.276
32	Intol. Scale 1: Single-Mindedness	-.248
38	RPM R - Rebel - Crusader	.207

Master Varimax Factor 7: This factor identifies rather completely undergraduate orientation to his education as opposed to a graduate's. His outside reading is limited by both absolute measures and also his comparison of himself to other undergraduate students. He is less satisfied by his program choices and indicates a willingness to enroll in the same course again. His evaluation of his courses shows that he perceived them to be largely memory work. He lacks identification with the faculty that his counterpart has obtained perceiving that the faculty members would react to the questionnaire different than he did. In spite of this lack of identification, however, the undergraduate claims a greater degree of faculty interaction than the graduate student.

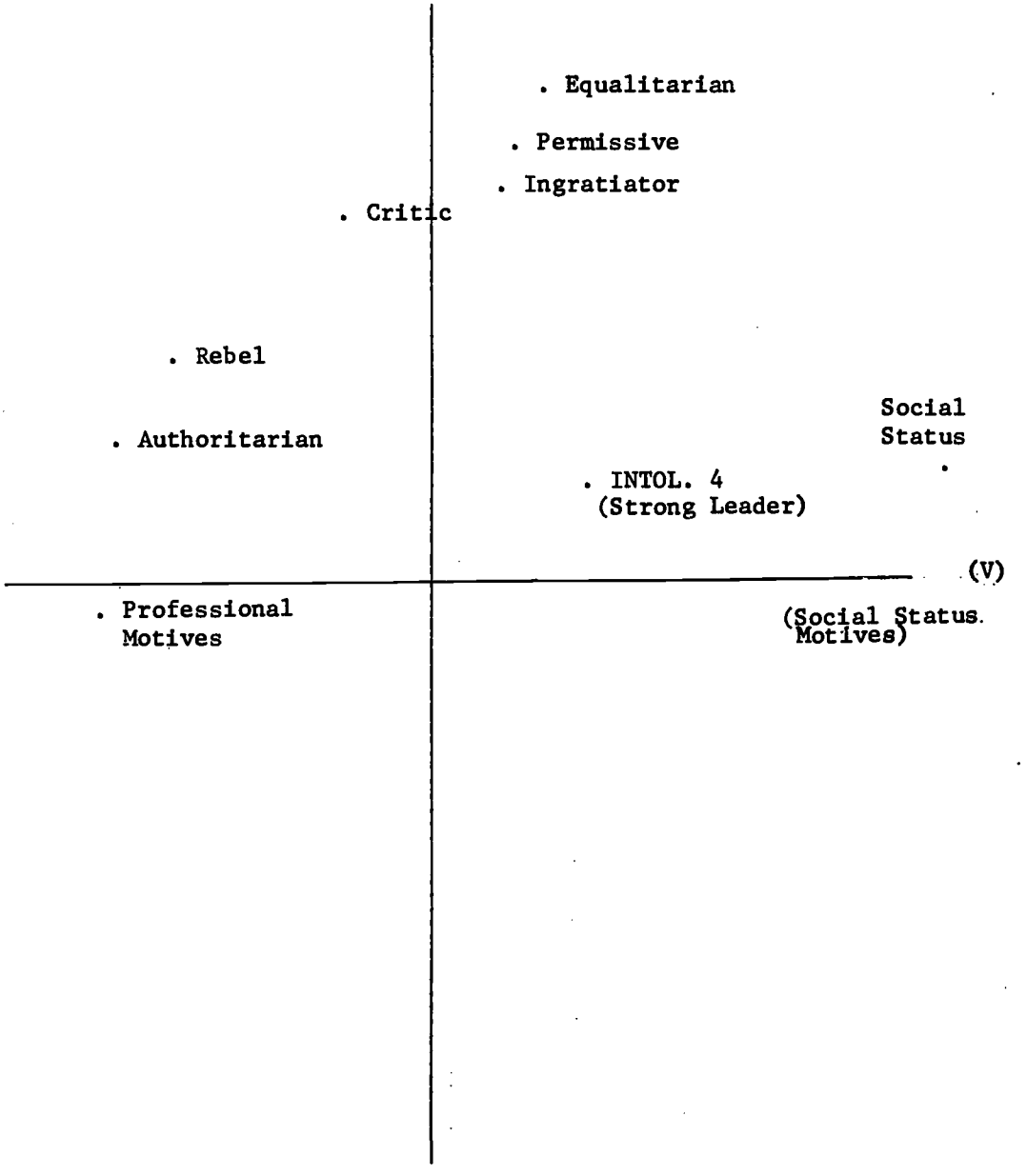
Table 43

Master Varimax Factor 7; Undergraduate vs Graduate

#	Variable	Loading
46	Undergraduate = 0; Graduate = 1	-.832
45	Program: Educ - undergrad. vs grads.	.689
18	Outside Reading Compared to Others	-.443
17	Outside Reading	-.418
31	Enroll in Same Program Again	-.357
43	Av. Crs. Evalu. - Synthesize vs Memorize	-.232
44	Identification with Faculty	-.219
19	Faculty Interaction	.216

Figure 6

RPM and Tolerance Variables on Varimax Factors IV and V



Master Varimax Factor 8: This Self-Improvement Motive for Enrollment factor can be considered an artifactor of the self ipsatized nature of question 9. The response involving self-improvement has been selected as most important whereas the alternative selection of professional growth and job opportunities are recorded in a negative direction. In spite of its mathematically determined nature of this factor it occupied an independent position in factor space and can be used for interpretations of variables which are only minimally loaded.

Table 44

Master Varimax Factor 8; Self-Improvement Motive

#	Variable	Loading
28	Enroll for Self-Improvement	.931
26	Enroll for Profession	-.390
25	Enroll for Job	-.379

Master Varimax 9: Graduate School Motives for Enrolling also includes alternatives for enrolling placing graduate programs plans in opposition to job selection. This is fairly meaningful when viewed from the perspective of the student's decision upon arriving at the end of his undergraduate work. Those looking forward to the graduate programs paradoxically are those who feel that they have read least compared with their peers. This ambiguity may arise from higher standards for personal performance than that used by job oriented students. Again this dimension occupied by this factor represents a meaningful independent reference dimension for evaluating other variables.

Table 45

Master Varimax Factor 9; Graduate School Motive

#	Variable	Loading
27	Enroll for Graduate Program	.808
25	Enroll for Job	-.749
18	Outside Reading Compared to Others	-.239

Master Varimax Factor 10: This is identified as Faculty Identification. The respondents who scored highly on this factor indicated a high degree of absolute with faculty and a high degree of outside reading. They also scored high on the professor identification from the LEM factor. The involvement with faculty was not perceived at the expense of interaction with their peers which also loaded substantially. The value of the student's interaction with faculty seemed to be measured in a less firmly held view of their personal objectives and a willingness to consider other courses of action than the one which they have

followed in their educational program. Their expectations of their professors involve a generation of participative learning environment and given the opportunity to indulge in creative individualism.

Table 46

Master Varimax 10; Faculty Identification

#	Variable	Loading
19	Faculty Interaction	.529
17	Reading Time	.438
10	LEM 10: Identification with Professor	.425
21	Student Interaction	.343
20	Compared to Faculty Interaction	.339
18	Compared to Outside Reading of Others	.333
30	Objective Change	.302
22	Student Interaction	.278
5	LEM 5 - Participative Learning	.232
8	LEM 8 - Creative Individual	.225

Oblique Factor Interpretations

Master Oblique Factor 1: In the oblique rotation this factor differentiated rather definitely the student who approaches education actively from the one who is passive. The former perceives the major role of higher education to be self-improvement. The latter perceives it to be preparation for a job he expects to be miraculously made over into something salable. He perceives that the failure of this process lies outside himself and he completes his self-justification by rating the educational system down. On the other hand the students who seek self-improvement through education are highly satisfied with the process. They see their programs as dynamic, valuable, orderly, innovative, and open.

Table 47

Master Oblique Factor 1, Self-Improvement Motives vs Job Motives

#	Variable Description	Maxplane	Promax
28	Self-Improvement	.690	.083
14	Dynamic vs Static	.622	.860
11	Valuable vs Worthless	.604	.815
13	Orderly vs Chaos	.580	.793
15	Innovative vs Traditional	.490	.633
25	Job Motives	-.444	-.229
12	Open vs Closed	.364	.514
23	Personal Objective	.293	.399
24	Career Objective	.279	.411
42	Av. Crs. Evaluation	.264	.466

Master Oblique Factor 2: This factor has been identified as Faculty Interaction vs Faculty Avoidance. The student who claims to interact successfully with his professors perceive the good professor to be primarily a discussion leader on LEM Factor 9. He wants to be individually creative on LEM 8 in his course selection and execution. LEM Factor 1 shows that he views the education as a participative learning experience in which the professor as well as the student learns. He tends to be an advanced upperclassman or graduate but the loading is small enough it indicate that this is far from a necessary condition.

Table 48

Master Oblique Factor 2, Faculty Interaction vs Faculty Avoidance

#	Variable Description	Maxplane
19	Frequent Faculty Interaction	.603
20	More Faculty Interaction than Others	.431
9	Professor Discussion Leader	.393
8	Creative Individual	.378
45	Graduate Business	.280
5	Innovative vs Participative	.272

Master Oblique Factor 3: This factor is identified as Increasing Clarity vs Increasing confusion. This seems to differentiate the students who claim to receive closure about personal and career goals as they progressed in their education from those who admit to becoming more confused. The latter had more faculty interaction, sought higher degrees and perceived the ideal system as being open, supportive of individualism and innovation. The individuals who became increasingly sure of their goals were the same ones who felt professors should be highly structured. This factor then becomes an unobtrusive measure of Tolerance for Ambiguity. It supports the supposition that many graduate students remain in school because of increasing confusion about personal and career goals.

TABLE 49

Master Oblique Factor 3, Increasing Clarity vs Increasing Confusion

#	Variable Description	Maxplane	Promax
23	Personal Objectives Become Clearer	.524	.723
24	Career Objectives Become Clearer	.519	.680
31	Would Repeat Same Academic Courses	.503	.578
19	Faculty Interaction	-.347	-.007
45	Program Identification	-.332	- 236
8	LEM 8 : Creative Individualism	-.289	- 102
9	LEM 9 : Prof. Discussion Leader	-.271	- 066
11	Overall Prog. Evlu. Valuable vs worth	.259	.337

Master Oblique Factor 4: RPM Social Desirability vs "no-saying" is the title given this factor since all RPM Scales appear on it loaded in the same direction. Since the scales on the instrument are not ipsatized, it is possible for all the scales to have high scores simultanously. Efforts were made to make the items equally socially desirable. It is possible that a high involvement, and hence high "yes-saying" would explain a factor of this kind. The fact that the "permissive" and "ingratiator" scales loaded most highly lends further credence to yes-saying, social desirability interpretations. Continuing with this interpretation, it would appear that the subjects most highly concerned about the social desirability hesitate to interact with the faculty as indicated by variables 19 and 20. They also reject the professor.

Table 50

Master Oblique Factor 4, RPM Social Desirability vs "no-saying"

#	Variable Description	Maxplane	Promax
41	RPM P - Permissive - Missionary	.565	.688
37	RPM I - Ingratiator - Pleaser	.490	.572
39	RPM Q - Equalitarian - Participator	.479	.624
19	Faculty Interaction	-.387	.081
36	RPM C - Cooperator - Critic	.361	.520
20	Faculty Interaction Comparison	-.357	- 168
38	RPM R - Rebel - Crusader	.316	.365
40	RPM A - Authoritarian	.309	.271
2	LEM 2: Professor Control	-.275	- 253
9	LEM 9: Professor Discussion Ld	-.257	-- 060

Master Oblique Factor 5: This factor has been labeled as Social Status vs Professional Growth Motives for Education. The student who enrolls in college for purposes of furthering his social status perceives the good professor in a more traditional light as reflected by LEM 9 (-) and does not want to express his own creative individuality as in LEM 8 (-). He does not seek interaction with the faculty as found in variables 19 and 20 and also in LEM Factor 10. It would appear from the positive loading of variable 46 that a segment of students take graduate work for status rather than professional reasons. The negative loading of variable 27, however, indicate that these were not the same graduate students who planned to take further graduate work after they had finished their current program.

Table 51

Master Oblique Factor 5, Social Status vs Professional Growth

#	Variable Description	Maxplane	Promax
29	Social Status	.490	.815
26	Professional	-.427	-.675

8	Creative Individuality - LEM 8	-.421	.020
19	Faculty Interaction	-.407	.142
20	Compare	-.325	.055
9	Professor Discussion Leader	-.318	020
30	Objective Change	-.302	- 230
46	Undergraduate	.277	112
10	Fac. Identification - LEM 10	-.265	- 184
27	Graduate Program	-.250	- 312

Master Oblique Factor 6: This factor has been identified as Progressive vs Traditional Educational Philosophies. It is loaded primarily with the LEM Factors, but in general LEM Factor 1 is fairly secondary. The Intolerance for Ambiguity Factor, Single-Mindedness, loads in the "traditional" direction as has been found in most studies where these concepts have been studied together. The marginal loading of permissiveness on the traditional side may be significant because of the paradox it superficially implies. The RPM model suggests that permissiveness is authoritarianism in disguise and, hence, this loading has a deeper consistency than seen at first.

Table 52

Master Oblique Factor 6, Progressive vs Traditional Educational Phil.

#	Variable Description	Maxplane	Promax
3	Evaluation Phobia - LEM Factor 3	.484	.461
8	Creative Individuality - LEM Factor 8	.471	.435
5	Participative Learning - LEM Factor 5	.461	.167
20	More Faculty Interaction than Other Students	.403	.184
9	Professor Discussion Leader	.394	.676
19	Large Amount of Faculty Interaction	.393	.103
32	Intolerance for Ambiguity - Factor 1	-.390	129
1	Structured Education - LEM Factor 1	-.389	011
6	Moralistic Evaluation - LEM Factor 6	-.319	071
2	LEM 2	-.094	505

Master Oblique Factor 7; This factor received the title of Graduate Involvement vs Undergraduate Casualness because of the nature ofthe five highest loaded variables. It suggests that the graduate student is much more involved in reading professional literature and interacting with faculty members is the undergraduate. He perceives the professor's role is primarily as a discussion leader. He tends to evaluate his course as "interesting" and "valuable" as opposed to "learning" and "worthless". He seeks more creative and innovative approaches than does the undergraduate.

Table 53

Master Oblique Factor 7, Graduate Involvement vs Undergrd. Casualness

#	Variable Description	Maxplane	Promax
17	Spends much time reading	.439	336
46	Undergrd. - Graduate	.411	.839
19	Spends much more time Interacting -Fac	.370	.252
18	Read More than other students	.347	.336
20	Interact with faculty more than Others	.302	- 129
9	Professor Discussion Leader	.302	.082
43	Valuable, Interesting vs boring, worth	.271	.265
8	Creative Individuality	.259	- 120
45	Program Identification	-.225	-.632

Master Oblique Factor 8: Factor 8 has been identified as Satisfaction vs Dissatisfaction with the Educational Program. The factor has been determined by the semantic differential scale found from the Overall Program Evalution Section. These scales are artificially correlated because of overlap in the items on the keys used to score the scales found on previous factor analysis. It can from this point of view be considered an "artifactor". The presence of other variables, however, must be given a real interpretation. It thus becomes clear that satisfaction with college is highly related to the degree to which ones personal and career objectives have become clearer as the program progressed. The satisfied students say they would repeat the same program if they had the opportunity to make the choice again.

Table 54

Master Oblique Factor 8, Satisfaction vs Dissatisfaction with Educational Program

#	Variable Description	Maxplane
14	Dynamic vs Static - OPE 4	.767
11	Valuable vs Worthless - OPE 1	.740
13	Order vs Chaos - OPE 3	.691
24	Career Objectives	.514
23	Personal Objectives	.507
15	Innovative vs Traditional - OPE	.490
12	Open vs Closed in Prog. Overall Evalu.	.373
42	Av. Crs. Evaluation	.353
31	Do Over Same Program	.307

Master Oblique Factor 9: This factor is entitled Self-Improvement vs Graduate School Motives. The fact that these two motives should load the same factor with opposite signs is

is partially accounted for by the ipsative nature, and, hence, negative correlations among the five possible responses to question nine. This does not completely explain the factor, however, since these are salient loadings other than those provided by question 9. The factor probably owes its existence to the draft. Graduate school is seen by many students as a way to continue a passive aimlessness of academia. Those selecting self-improvement as the reason for their attendance are more satisfied and objectively directed. These individuals may include some of the older students whose purposes for school actually include self-improvement and to whom admission to graduate programs is somewhat less likely and less valuable as a hedge from the draft.

Table 55

Master Oblique Factor 9, Active Self-Improvement vs Passive Graduate School Motives

#	Variable Description	Maxplane	Promax
27	Graduate Program	-.589	-.834
28	Self Improvement	.557	.113
14	Dynamic vs Static - OPE 4	.370	.074
15	Innovative vs Traditional - OPE 5	..364	.041
11	Valuable vs Worthless OPE 1	.363	-.110
12	Open vs Closed - OPE 1	.336	.112
13	Order vs Chaos - OPE 3	.316	-.110
24	Clearer Career Objectives	.263	.102
25	Enroll for Job	--	628

Master Oblique Factor 10: This factor has been labeled Participative Learning vs Authoritarian. This is one of the few master factors which included factors from the various factored tests. The nature of this factor is defined b y questions on the biographical section factors from the LEM, factors from the Intolerance for Ambiguity Scales and the PPM. The loadings are moderate but numerous and generally support the investigation hypothesis concerning the nature of education and the applicability of the same constructs to it that have been found useful in describing business climates. Participative learning involves the professor acting as both an equal and an active learner with his teaching methods including discussion groups while at the same time he allows the creative individual to do his "own thing". The prominence of the two reading variables (17 and 18) indicates that on the contrary, it can be shown that the authoritarian is less active in his involvement. He has a hostile feeling that the educational system does not solve his problems for him.

Table 56

Master Oblique 10, Participative Learning vs Authoritarian Intolerance for Ambiguity

#	Variable Description	Maxplane	Promax
19	Faculty Interaction	.484	.647
17	Reading Time	.462	.235
5	Participative Learning LEM Factor 5	.356	.226
20	Compare	.347	.408
10	Identification with Professor	.336	.240
40	Authoritarian	-.323	-.247
34	Self-Justification	-.311	-.165
33	Dichotomous Thinking	-.306	-.033
2	LEM Factor 2	-.304	- 036
7	LEM Factor 7	-.298	140
4	LEM Factor 4	-.287	.038
1	Structured vs Unstructured	-.275	018

Salient Variance Identification

The Varimax rotation for the master factor analyses makes it possible to study relative distribution of variance for any variable by factors. The amount of variance which any variables contribute to a factor analyses is usually considerably below 1.00. This value is called the communality and represents the degree to which any one variable is being measured by the universe of variables in the study. To obtain the relative distribution within the study, the individual factor loading must be squared to get the percentages and those percentages multiplied by a consonant amount to obtain a total of 100.

Variance Identification for Academic Questions: The variance for these questions were distributed over all the factors found in the study. The integrating factor explained most of the variances in goals and program choices, but also the question involving interaction with other students. The faculty identification factor contributed most variance to outside reading, faculty interactions, and basic changes in objectives. The factors involving the reasons for enrollment contributed primarily to this type of variable but served as secondary contributors to many of the other questions. The general satisfaction factor was not affected by the way any of the academic questions were answered. This is disconcerting because it indicates that the student evaluation process id completely irrevelant to their more essential decisions concerning their college program activities. This suggests that their course evaluations would be distressing to both the college instructional and the administrative staff.

Variance Identification of RPM and Tolerance Variables: As indicates in an earlier discussion, RPM variables of this particular form were highly contaminated by social desirability. This becomes clear in the variance analyses. The amount of social desirability varies from the Equalitarian Scale at 93% to the Authoritarian Scale at 36% suggesting that social values seem to be influencing scale construction and scale purification. The scales fit into a hierarchy which is directly related to the contamination of judging the value of these relating to social desirability. Interestingly enough the intolerance scales are primarily defined by closed simplicity as hypothesized at the beginning of the research. Single-Mindedness is negatively contributed to by the creative individualism while dichotoization and self-justification have strong negative contributions from the factor involving social status motives. The intolerance scale which is identified with a need for strong leaders derives its major contribution from social status and negative contributions from closed simplicity. This scale has significant contribution from the faculty identification factor which suggests that an involvement with faculty satisfies dependency need.

Table 57 Salient Variance Identification from Varimax Master Factor Analysis Academic Behavior Questions - (After expansion of percentages to unit vectors)

Variables	#	Satis-faction	Closed Simpli-city	Integr-ation	Social Status Motive	Social Desira-bility	Creati. Indi-vidual	Ungrd. Uninvol ment	Self-Impvr. ment	Grd. School Motive	Faculty Ident.
Time Reading Extra	17	2%	2%	18%	02	-	02	(-) 34%	1%	20%	37%
Interacting Faculty	19	-	(-) 2%	5%	17%	(-) 1%	8%	9%	-	-	58%
Interacting Student	21	-	-	79%	-	1%	-	-	-	-	20%
Clear Personal Goals	23	2%	-	96%	-	-	-	2%	-	-	-
Clear Career Goals	24	4%	3%	93%	-	-	-	-	-	-	-
Changed Objectives	30	1%	-	-	(-) 19%	(-) 8%	-	9%	7%	-	57%
Same Choice Again	31	1%	-	74%	-	-	-	(-) 23%	-	-	(-) 2%
Enroll for Job	25	-	-	(-) 2%	-	-	(-) 1%	-	(-) 20%	(-) 77%	-
Enroll for Profession	26	(-) 1%	(-) 1%	3%	(-) 62%	-	-	3	(-) 25%	-	4%
Enroll for Grad. School	27	-	2%	(-) 1%	(-) 9%	-	-	(-) 2%	(-) 4%	82%	-
Enroll for Self-Imprv.	28	-	-	1%	-	-	-	-	98%	1%	-
Enroll for Social Status	29	-	-	-	91%	1%	1%	-	-	5%	1%

Table 58

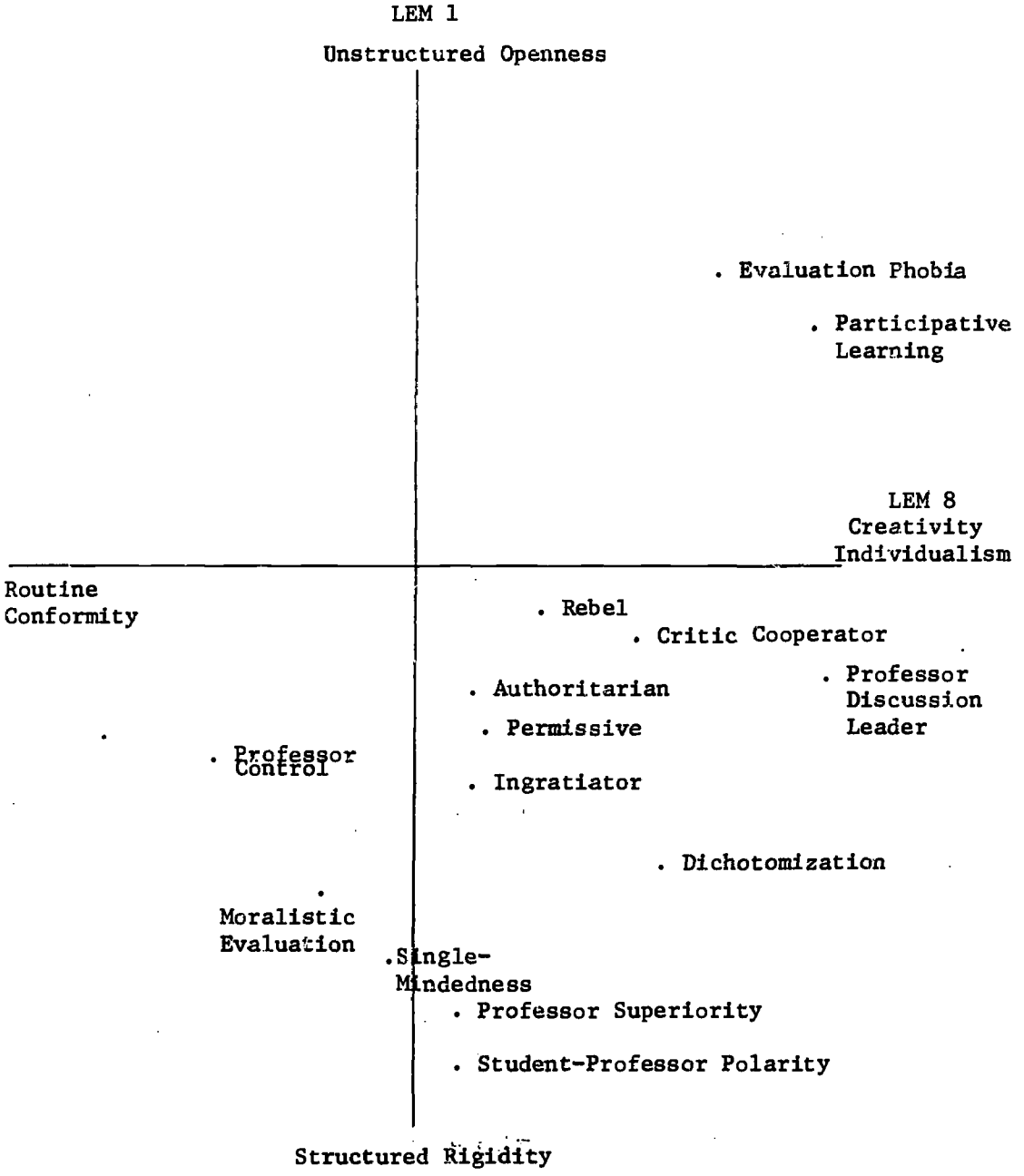
Salient Variance Identification from the Varimax Master Analysis - RPM Variables and Intolerance Variables (Percentages after expansion to unit vectors)

Variables	#	Satis-faction	Closed Simpli-city	Integr-ation	Social Desira-bility	Social Status Motives	Creati. Indi-vidual	Ungrd.-Uninvol ment	Self Imprv-ment	Grd. Sch. Motives	Faculty Identif.
Honest Critic	36	-	-	3%	86%	-	4%	-	-	2%	6%
Ingratiator	37	-	14%		86%	-	-	-	-	-	-
Rebel	38	(-) 3	3%	-	59%	(-)18%	10%	-	4%	(-)3%	-
Equalitarian	39	3	-	-	93%	4%	-	-	-	-	-
Authoritarian	40	(-) 9	11%	-	36%	(-)36%	1%	-	5%	(-)2%	-
Permissive	41	3	3%	1%	90%	1%	-	-	2%	-	-
Single Mindedness	32	-	66%	(-)4%	5%	(-) 3%	(-)18%	-	-	4%	-
Dichotomization	33	-	76%	-	2%	(-)14	2%	-	2%	4%	-
Self Justification	34	-	63%	-	-	(-)19%	2%	-	11%	-	(-)5%
Strong Leader	35	-	(-) 17%	2%	6%	53%	-	-	(-) 5%		17%

Figure 7

Correlellogram Using LEM Variable 1 and 8 as Coordinates

$r_{18} = .02$



LEM Variance Identification of LEM Variables: The LEM Factors are primarily identified by Varimax Factor 2 - Closed Simplicity and Varimax Factor 6 - Creative Individuality. Surprisingly enough the LEM Scales did not significantly influence Factor 1 - Satisfaction, Factor 2 - Integration, Factor 5 - Social Status Motives, Factor 8 - Self-Improvement and Factor 9 - Graduate Scales Motives. The analysis makes it clear, however, that LEM Factors 3, 5, 8, and 9 differ from each other. Structured simplicity opposed the open system, moralistic evaluation and Student-Professor Polarity primarily contributed to the Closed-Simplicity Factor. Evaluation Phobia, Participative Learning seems to be a reaction against the Closed Simplicity and it also positively influenced Faculty Identification. Both Professor Control and Evaluation Phobia have negative contributions for Faculty Identification. Nearly all of the LEM Scales have some small contribution in the positive direction for Social Desirability. Professor Control is an exceptation having an 8% negative contribution for Social Desirability.

Variance of Identification Academic Measures: The academic evaluation measures were disappointedly correlated and, hence, fell largely upon the same factor. The contributions to them by factors varied from 98% for Innovative Program Evaluation to 45% for Identification with Faculty Members, and 55 % Average Course Evaluation. The remaining variance is distributed very thinly throughout the other factors which somewhat emphasized contributions from Integration and Undergraduate Uninvolvement. An unexplainable lack of contribution was found with faculty variable from the Faculty Identification factor. The operational measure of identification of faculty involves an indirect method of measurement which placed it at right angles to the faculty identification factor. It is, however, highly related to Graduate Involvement as opposed to undergraduate uninvolvement. Measures of synthesis and openness were found to be negatively contributed to by integration whereas other evaluative measures had positive contributions.

Table 59. Salient Variance Identification from Varimax Master Factor Analysis - Academic Evaluation Measures (Percentages after expansion to unit vectors)

VARIABLES	#	Satis-faction	Simpli-city	Integr-ation	Social Status Motives	Creative Indi-vidual	Ungrd.- Uninvol ment	Self Imprv-ment	Grd. Sch Motives	Social Desira-bility	Faculty Identif.
Av.Crs Evlu. Interesting vs	42	82%	(-) 3%	-	6%	1%	(-) 4%	(-) 2%	-	2%	-
Av. Crs. Evlu. Synthesize	43	55%	-	(-) 6%	12%	1%	(-) 14%	7%	2%	-	1%
Identification with Faculty	44	45%	-	12%	9%	7%	(-) 22%	2%	3%	-	-
Prgm. Evlu. Valuable	11	77%	-	17%	-	-	1%	-	3%	2%	-
Prgm. Evlu. Open vs Closed	12	89%	-	(-) 7%	-	-	1%	-	3%	-	-
Prgm. Evlu. Order vs Chaos	13	74%	-	11%	-	1%	5%	-	5%	4%	1%
Prgm. Evlu. Dynamic vs. Static	14	81%	-	11%	-	-	1%	-	3%	4%	-
Prgm. Evlu. Innovative vs	15	98%	-	2%	-	-	-	-	-	-	-
Prgm. Evlu. Sythesize	16	73%		(-) 17	-	2%	-	-	2%	4%	2%

Figure 8

A Plot of Evaluation Variables on Varimax Factor I-Satisfaction and Varimax Factor III - Integrated Objectives

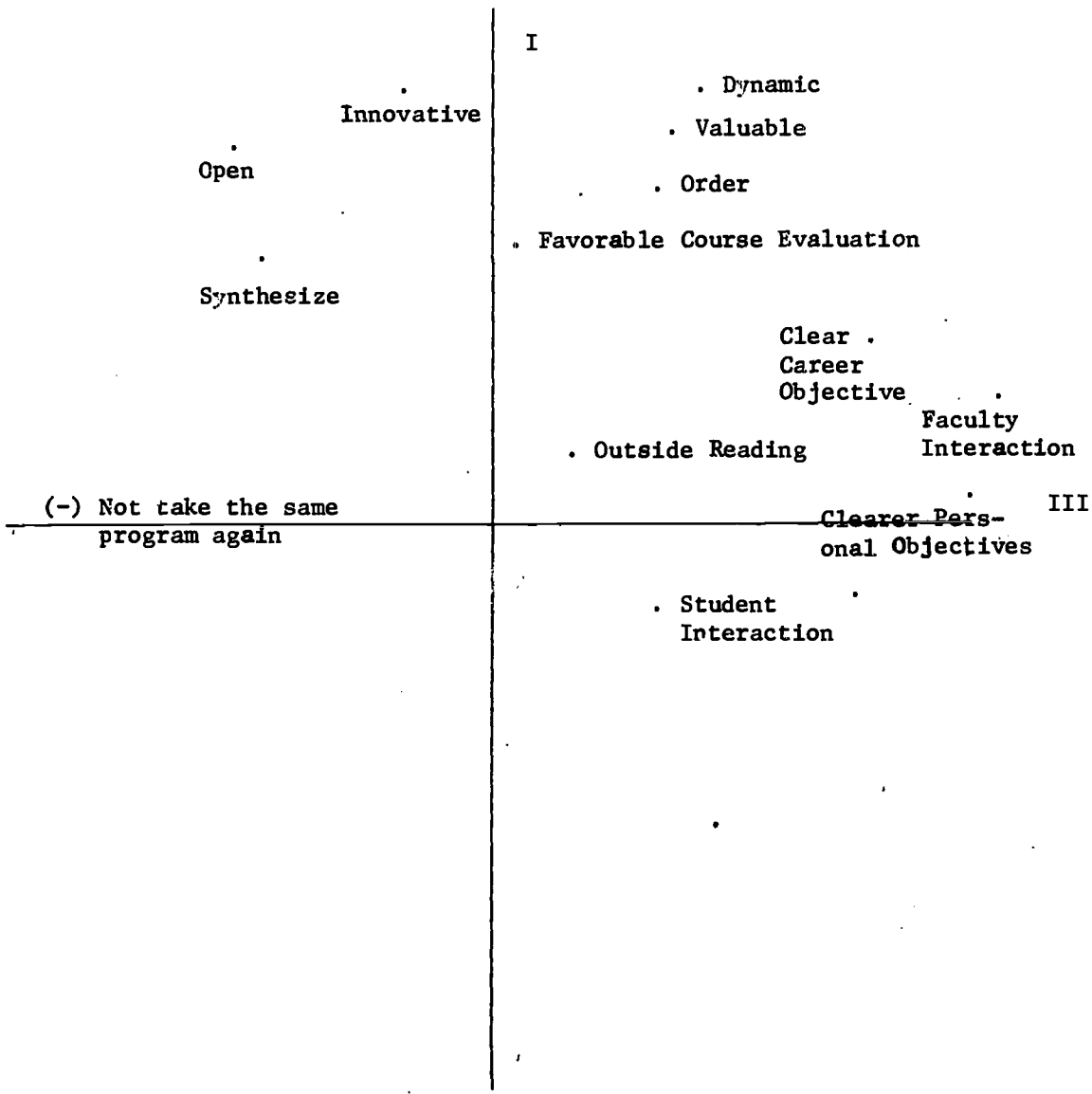


TABLE 60

The Intercorrelations Among the Ten Master Maxplane Factors
N = 210

Short Title	Maxplane Factor Numbers									
	1	2	3	4	5	6	7	8	9	10
1. Self Improvement		.27	.51	10	-06	-18	-08	-73	-68	-18
2. Faculty Interaction	..27		.47	.39	25	-26	-33	-35	-19	-.04
3. Clarity of Objectiv	51	.47		.32	-.23	+.01	+.03	-.75	-.29	-02
4. RPM Social Desirability	10	.39	.32		-36	+16	+12	-21	+11	-09
5. Social Status Motives	-.06	.25	-.23	-36		+03	-25	+17	-18	10
6. Progressive Education	-.18	-.26	+.01	+16	+03		-12	+08	+02	+.01
7. Graduate Involvement	-.08	-.33	+.03	+12	-25	-.12		+08	+29	-43
8. Satisfaction	-.73	-.35	-.75	-21	+17	+.08	+.08		+.36	+16
9. Self Improvement	-.68	-.19	-.29	+11	-.18	+.02	+.29	+36		+.09
10. Participative Learning	-.18	-.04	-.02	-09	.10	+01	-.43	+16	+09	

Table 61. Salient Variance Identification from Varimax Master Analysis - LEM Variables
(Percentages after expansion to Unit Vectors)

Lem Variable	Satis-faction	Closed Simpli-city	Integr-ation	Social Desira-bility	Social Status Motives	Creati. Individ ual	Ungrd. Uninvol-ment	Self Impvr.-ment	Grd.Sch. Motives	Faculty Identi-ficatio	TOTALS.
Closed Simplicity vs Open Complexi.	-	82%	2%	.07%	3%	(-)5%	2%	-	-	-	100%
Professor Control	(-)2%	58%	2%	(-)8%	-	20%	(-)2%	-	-	(-)8%	100%
Evaluation Phobia	-	(-)15%	-	2%	2%	72%	-	2%	-	(-)7%	100%
Professor Super-iority	-	92%	-	2%	-	5%	1%	-	-	-	100%
Participative Learning	-	(-)45%	-	4%	2%	33%	--	-	-	16%	100%
Moralistic Evaluation	2%	92%	-	-	-	2%	4%	-	-	-	100%
Student-Prof. Polarity	-	93%	1%	5%	-	1%	-	-	-	-	100%
Creative Individualism	-	-	- -	7%	4%	88%	1%	-	-	-	100%
Professor Discussion Leader	1%	25%	-	-	-	74%	-	-	-	-	100%
Identification with Professor	-	-	-	7%	3%	-	10%	-	-	80%	100%

Table 62

Intercorrelations of LEM Scales N = 210

Scale	1	2	3	4	5	6	7	8	9	10
1. Structured Closed	1.00									
2. Professor Control	.22	1.00								
3. Evaluation Phobia	-.30	.04	1.00							
4. Professor Superiority	.51	.38	-.02	1.00						
5. Participative Learning	-.22	-.27	.21	-.21	1.00					
6. Moralistic Evalution	.42	.44	-.37	.38	-.35	1.00				
7. Student vs Professor	.62	.35	-.11	.56	-.28	.46	1.00			
8. Creative Individual	.02	.04	.32	.01	.38	-.07	.05	1.00		
9. Professor Discussion	.13	.40	.26	.33	.08	.24	.37	.39	1.00	
10. Identify with Prof.	.001	-.27	-.10	.04	.13	.12	.02	.16	.00	1.00

r = .138; .05 level of significance
r = .181; .01 level of significance

Table 63

Intercorrelations of RPM and Intolerance Scales

N = 210

Scales	1	2	3	4	C	I	R	Q	A	P
1 Single-Mindedness	1.00									
2 Dichotomization	.28	1.00								
3 Self-Justification	.28	.32	1.00							
4 Strong Leader	-.08	-.15	-.28	1.00						
C Co-operator-Critic	.01	.08	.03	.17	1.00					
I Ingratiator	.17	.19	.17	.01	.20	1.00				
R Rebel	.03	.15	.13	.11	.37	.28	1.00			
Q Equalitarian	.01	.03	.02	.16	.37	.45	.28	1.00		
A Authoritarian	.20	.21	.19	-.13	.30	.21	.56	.10	1.00	
P Permissive	.23	.08	.05	-.01	.32	.56	.20	.55	.11	1.00

r = .138; .05 level of significance
r = .181; .01 level of significance

CHAPTER IV

DISCUSSION

This study as many others was predicated upon some notions which were too naively simple. It was the investigator's desire to find a very few simple dimensions which could be measured by a variety of instruments based upon entirely different measurement principles and concepts. These hopes were largely unfulfilled. The instruments tended to measure dimensions in the same general locality, and, hence, the scales from each instrument tended to intercorrelate with each other rather than scales from other instruments. The Learning Environment Measure (LEM) in the Preliminary Factor analysis yielded ten orthogonal factors. However, in the master factor analysis the derived scales clustered together in a disappointing manner. The four intolerance scales also tended to correlate with each other but with not too many other variables in the matrix. Psychometrically these results could be attributed to "instrument factors". Philosophically, however it probably means that our systems for viewing the complex interactions are too naive to cross content lines. In spite of the lack of cross correlations between instruments, it is possible that had the items been factored together many factors would have evolved which included items from various instruments within the same construct. Another difficulty could have been avoided had actual factor scores been utilized rather than unit weighted item scales. The latter created intercorrelated scales where the former could have been kept independent. Because of the exploratory nature of this particular study, this degree of precision did not seem necessary. In light of the results, however, it would seem desirable to be employed in future studies.

Factor Identification

The scale identifications made from the preliminary factor analyses were largely supported in terms of construct validities derived from the master factor analysis to which they were applied. The LEM scale particularly seemed to measure rather successfully the dimension which they were purported to measure. Fine distinctions such as professor control and professor superiority tended to be lost in the abbreviated factor space of the master factor analysis. Their intercorrelations were still low enough to suspect that they actually were independent dimensions. Considering the preliminary nature of the LEM the derived scales showed a remarkable saturation and construct validity. The investigator was constrained in using a newer and more reliable version of the LEM by the need for comparability of samples gathered over a year's period of time during which period, the better version became available.

The Tolerance for Ambiguity Scales and Dogmatism Scales were developed as independent instruments for measuring distinctly different concepts. When factored analyzed together, however, the items tend to merge and yield not two scales but four, each having a specialized interpretation. The identification of these scales originally was based upon item content but the appropriateness of the identification was made additionally clear by the loadings in the master factor analysis. Single-Mindedness was closely identified with the closed simplicity found in the Learning Environment Measure which supports one of the main hypothesis of the study.

Other related learning environment factors were generated, however, where the relationships with the intolerance scales were less distinct suggesting that the opened-closed, simple-complex structure-unstructured kinds of descriptions are not sufficiently inclusive.

The entire area of academia performance as measured by grade point averages was omitted from this study. Indirect methods such as course satisfaction and intentions could be used to infer general performance as a prerequisite to these options. Never-the-less there is a lingering question how would G.P.A. have fared had it been fed into the final analysis. This question may be so confused with the pattern for rewarding student behavior that it is a function of the educational philosophy of the professor. That, however, was not studied and could will be the nucleous of the next investigation in this area.

CHAPTER V

SUMMARY and CONCLUSION

An exhaustive battery of questionnaires and attitude scales were given to 327 graduate and undergraduate students from a mid-western university concerning their attitudes, evaluations, and expectations of their individual courses, their program of study, their own behaviors, and the nature of the instructional methods. The data were gathered over a period of a years time and primarily in the College of Business Administration with supplementary data gathered from the Departments of Psychology and Secondary Education. The data were reduced through preliminary factor analyses of individual instruments derived from a preliminary sample. The results and scoring methods were then applied to additional samples to determine how the various instruments were interrelated.

The Learning Environment Measure which had been developed primarily for this particular study was found to have ten dimensions: Structured vs Unstructured, Professor Control, Evaluation Phobia, Professor Superiority, Participative Learning, Moralistic Evaluation, Student-Professor Polarity, Creativity Individualism, Professor Discussion Leader, Identification with Professor.

The Rokeach Dogmatism Scales and the Rydell and Rosen Tolerance Scale yielded four factors which were identified as: Single-Mindedness, Parataxic Distortion, Self-Justification and Simplification Through Dependency. These factors selected from both instruments indicating a lack of factorial purity of either.

The Semantic Differential Scales which were used in the Overall Program Evaluation yielded six factors which were identified as Valuable vs Worthless, Open vs Closed, Order vs Chaos, Dynamic vs Static, Innovative vs Traditional, and Synthesize vs Memorize.

After these scoring methods had been applied to the new sample of 210, mixed graduate and undergraduates master factor analyses were computed utilizing principle factor extraction in Varimax rotation. Adhering to a criterion of 1.00 for the latent route, the factoring was terminated at ten factors. The Varimax factors derived from this analyses were identified as satisfied vs dissatisfied, closed simplicity vs open complexity, RPM social desirability vs no-saying, social status vs professional motives, creativity individuality vs routine rigor, undergraduate vs graduate, self-improvement motives vs graduate motives and faculty identification.

The oblique factors bore some similarities to the orthogonal ones but were viewed separately and identified as: self-improvement vs job motives, faculty interaction vs faculty avoidance, RPM social desirability vs no-saying, social status vs professional growth, progressive vs Traditional philosophies, graduate involvement vs undergraduate,

satisfaction vs dissatisfaction, active self-improvement vs passive school motives, and participative learning vs authoritarian intolerance for ambiguity.

A Salient Variance Identification Analyses was based upon extending the variables in the Varimax master factor analyses to unit vectors. This resulted in a distribution by percentages of the variances for each variable to ten varimax factors. The various questions and scales were found to be clustered largely by instrument rather than by conceptual identity. In spite of this it became clear that most behaviors and attitudes held by students toward their education proves highly complex and often related to rather unexpected underlying values. The behavior and influence of professors was particularly meaningful in helping the student creatively change his objectives. It was also found that the professor seems to influence students not only in increased outside reading but also increased interaction with other students.

Probably the most significant aggregrate of results were those related to the concepts when measured empirically indicate that a much more complex model must be employed if teachers and professors are going to properly evaluate their impact upon students.

Creative individualism combines not only rebelliousness but also a lack of intolerance. The ten LEM orthogonal scales load primarily on two of the ten master factors in such a way as to locate evaluation phobia, professor discussion leader, and participative learning in a close proxmity. It becomes clear that the absence of established social desirability patterns or peer norms have generated considerable confusion.

The satisfaction-dissatisfaction dimension was found to be disappointingly unrelated to the various predictive variables and student expectations. The utilization of analyses of variance, however, indicates sufficient interaction in some cases between satisfaction and the nature of the program to explain why many of these simple correlations were diminished.

This study emphasizes a growing predilection that most of our attitude measurement devices are sampling a limited behavior space which seems relatively unrelated to some more complex behavior areas for which predictors are being sought. Refinements of such instruments as the Learning Environment Measure and Response to Power may ultimately solve some of the difficulty, but it seems more likely that completely new methods of attitude measurement should be devised. An alternate solution lies in the development of a different model for explaining complex behavior which would depend upon a completely different set of hypothetical constructs. The results of this study indicate that if a preference is shown within the sample, it is for the open-integrative learning environment. The relationships, however, are sufficiently small to indicate considerable opposition from other members of the tested sample.

BIBLIOGRAPHY

Adorno, T. W., Frenkel-Brunswik, E., Levinson, D, J., and Sanford, R.N. The Authoritarian Personality. New York: Harper, 1950.

Budner, Stanley."Intolerance of Ambiguity as a Personality Variable," Journal of Personality, 30, (1962), 29-51

Burgoon, H. Michael, "Tolerance for Ambiguity and Task Difficulty as Predictors of Group Attraction." An unpublished master's thesis, Wichita State University, 1968.

Cattell, Raymond B. Factor Analysis. New York: Harpers & Brothers. 1952

Cattell, Raymond B. "Handbook for the Culture-Fair Intelligence Test: A Measure of 'g'" Champaign, Illinois: Institute of Personality and Ability Testing, 1959.

Cattell, Raymond B. "The Procrustes Program: Producing Direct Rotation to Test a Hypothesized Factor Structure." Behavioral Science, Vol.7, 1962, pp. 258-262.

Cattell, R. B., Horn, J. L., Sweney, A.B., and Radcliffe, J.A. Motivation Analysis Test "MAT".Illinois: Institute for Personality and Ability Testing, 1964.

Cattell, R.B., Muerle, J. L. "The Maxplane Program for Factor Rotation to Oblique Simple Structure" Educational Psychological Measurement, 1960, 20, 569-590.

Cattell, R.B., Radcliffe, J.A., and Sweney, A.B., The nature and measurement of components of motivation, Genetic Psychology Monographs, 1963, 68, 49-211.

Harman, Harry H. Modern Factor Analysis, Chicago: University of Chicago Press, 1970.

Holland, John L., and Taylor, C. W. "Development and Application of Tests of Creativity." Review of Educational Research, Vol. 32, 1962, 91-102.

Peel, E.A. The measurement of interests by verbal methods. British Journal of Statistical Psychology, 1959, 12, 105-118.

Osgood, C. E., Suci, G. J. and Tannenbaum, P. "The Measurement of Meaning". Urbana, Ill. University of Illinois Press, 1957.

Radcliffe, J.A. Some properties of ipsative score matrices and their relevance for some current tests. Australian Journal of Psychology, 1963, (b), 15, 1-11.

Rokeach, M. The Open and Closed Mind: Investigations into the Nature of Beliefs Systems and Personality Systems. New York: Basic Books, 1960. (a)

Rokeach, M. "The Nature of Attitudes". In International Encyclopedia of the Social Sciences. New York: Macmillan, 1968.

Rydell, Susan T. "Tolerance for Ambiguity and Semantic Differential Ratings," Psychological Reports , 19 (1966), 1303-1312.

Rydell, Susan T. and Rosen, E. "Measurement and Some Correlates of Need-Cognition," Psychological Reports, 19 (1966), 139-165.

Schroder, H. M., and Streufert, S. "Conceptual Structure. Environmental Complexity and Task Performance." Journal of Experimental Research in Personality, Vol.1, 1965, pp. 132-137.

Stein, D.D. " The Influence of Belief Systems on Interpersonal Preference: A Validation of Study of Rokeach's Theory of Prejudice." Psychological Monographs, 1966, 80 (Whole No. 616).

Sweney, Arthur B. Response to Power Measure Handbook, Test Systems Inc. P.O. Box 18432, Wichita, Kansas, 1970

Sweney, Arthur B. Organizational Power Roles: the games business men play, Professional Management Bulletins, Vol. 10, 1970, pp. 5-12

Torrance, E. P., "Examples and Rationales of Test, Tasks for Assessing Creative Abilities." Journal of Creative Behavior, Vol. 2, 1968, 137-154.

Triandis, H.C.,"A Note on Rokeach's Theory of Prejudice." Journal of Abnormal and Social Psychology, 1961, 62, 184-186.

Troldahl, V.C., and Powell, F.A. "A Short-Form Dogmatism Scale for use in File Studies." Social Forces, 1965, 44, 211-214.

Tucker, L. R. An interbattery method of factor analysis. Psychometrika, 1958, 23, 111-136.

Weston, John and Sweney, Arthur B. Learning Environment Measure Handbook, Test Systems, Inc. P.O. Box 18432, Wichita, Kansas, 1971.

Williams, Frank E. "Intellectual Creativity and the Teacher" Journal of Creative Behavior, Vol. I, 1967, pp. 173-180.

Wright, C. E. Relations between mormative and ipsative measures of personality. Unpublished doctoral dissertation. University of Washington, 1957.

APPENDICES

A. INSTRUMENTS

B. TABLES

Appendix 1 - Instructions

COLLEGE OF BUSINESS PROGRAM EVALUATION

PURPOSE:

At this time there is considerable progress toward developing a Cooperative Doctoral Program in Business with Kansas University. It becomes mandatory, therefore, that we evaluate our Masters Degree Programs to better understand our strengths and weaknesses.

The battery of forms and tests which you are about to take will make it possible to learn about out own program and establish some meaningful concepts and procedures for investigating some of the paradoxes of higher education in general.

INSTRUCTIONS:

In order for this evaluation program to be meaningful every one should fill in the tests as conscientiously as possible. The battery is lengthy, but has been drastically reduced from its original form to keep it from being too burdensome.

Some of the forms have places for names. All of these (but those on the last page) should be ignored. We do not wish to identify evaluations with individuals. To preserve your anonymity and yet record your cooperation with the project, your name should be recorded only on the last page and this should be torn off and turned in at the end of the session.

A - 2, LEM

At the right of each question are spaces to mark whether you strongly agree (SA), agree (A), disagree (D) or strongly disagree (SD) with each. Mark every question once and only once. Work quickly and don't leave any out.

LEM

FORM A

		SA	A	D	SD
1.	A good professor spends a lot of time on his own research.....	( )	( )	( )	( )
2.	I think a professor should be well dressed.....	( )	( )	( )	( )
3.	I feel a lot smarter now than I did a few years ago.....	( )	( )	( )	( )
4.	I like to see overly talkative students shot down.....	( )	( )	( )	( )
5.	A professor's off campus behavior should be exemplary.....	( )	( )	( )	( )
6.	I like to independently derive answers to general problems.....	( )	( )	( )	( )
7.	I don't like to admit to myself that I'm confused.....	( )	( )	( )	( )
8.	I get my kicks from finding new ways of looking at old problems	( )	( )	( )	( )
9.	I don't like a professor to stray from his topic.....	( )	( )	( )	( )
10.	I like a professor who is a conscientous grader.....	( )	( )	( )	( )
11.	A good professor insists that his students keep up.....	( )	( )	( )	( )
12.	I like exam questions that have a clearly right or wrong answer...	( )	( )	( )	( )
13.	I don't like to end up confused after a class.....	( )	( )	( )	( )
14.	I like a professor who doesn't give exams.....	( )	( )	( )	( )
15.	I like to ask questions.....	( )	( )	( )	( )
16.	I like professors who do not contradict themselves.....	( )	( )	( )	( )
17.	A good professor is excited about his course material.....	( )	( )	( )	( )
18.	A good professor lectures from well prepared notes.....	( )	( )	( )	( )
19.	I dislike professors who are unpredictable.....	( )	( )	( )	( )
20.	A good student has a complete set of notes.....	( )	( )	( )	( )
21.	A good professor records attendance.....	( )	( )	( )	( )
22.	I don't like a professor who is biased by his own point of view ..	( )	( )	( )	( )
23.	A good professor realizes that I'm good.....	( )	( )	( )	( )
24.	A good professor clarifies the ambiguities in text materials...	( )	( )	( )	( )
25.	I don't like to see professors smoke in class.....	( )	( )	( )	( )
26.	I like to respond to questions raised in class.....	( )	( )	( )	( )
27.	A good lecturer is an extremely good listener.....	( )	( )	( )	( )
28.	I don't like professors who ask too much of students.....	( )	( )	( )	( )
29.	I like a professor who doesn't care much about grades.....	( )	( )	( )	( )
30.	A good student has clearly specified long ranged career goals..	( )	( )	( )	( )
31.	If a professor lets the students run the class, he is lazy.....	( )	( )	( )	( )
32.	I like a professor who doesn't leave his ideas dangling.....	( )	( )	( )	( )
33.	I would prefer to study under famous men.....	( )	( )	( )	( )
34.	I feel good when my questions stump even the professor.....	( )	( )	( )	( )
35.	A good professor tends to dominate class discussion.....	( )	( )	( )	( )
36.	I like to know exactly how my grade will be calculated.....	( )	( )	( )	( )
37.	I don't like a professor who walks around the class a lot.....	( )	( )	( )	( )
38.	I like to completely understand what I've learned from a class.	( )	( )	( )	( )
39.	A good professor doesn't like grading students.....	( )	( )	( )	( )
40.	I think a professor should have a dynamic presentation.....	( )	( )	( )	( )

		SA	A	D	SD
41.	I like professors who just let me "do my thing".....	( )	( )	( )	( )
42.	Essay examinations permit too much subjectivity in grading.....	( )	( )	( )	( )
43.	I feel satisfied when I've learned what a professor knows.....	( )	( )	( )	( )
44.	Good professors are primarily discussion leaders.....	( )	( )	( )	( )
45.	I have had my fill of group projects in courses.....	( )	( )	( )	( )
46.	My own solutions to problems excite me.....	( )	( )	( )	( )
47.	I don't like professors to be critical of the texts they assign....	( )	( )	( )	( )
48.	I like it when a professor makes an ambigious assignment.....	( )	( )	( )	( )
49.	I like professors who give facts rather than opinions.....	( )	( )	( )	( )
50.	I dislike classes where students ask a lot of silly questions..	( )	( )	( )	( )
51.	I like a professor who is clearly superior to his students.....	( )	( )	( )	( )
52.	A good professor takes the time to make up an objective exam...	( )	( )	( )	( )
53.	A good student decides early the courses he wants in his program..	( )	( )	( )	( )
54.	A professor should know most of what is known in his field.....	( )	( )	( )	( )
55.	A good professor is not abstract in his thinking and presentation	( )	( )	( )	( )
56.	A good student takes notes that reflect his thoughts in class....	( )	( )	( )	( )
57.	I would enjoy a class where I could learn about whatever interested me.....	( )	( )	( )	( )
58.	I am happy just understanding problems even where no one knows the answer.....	( )	( )	( )	( )
59.	A good professor does not spend a lot of time testing his own speculations in class.....	( )	( )	( )	( )
60.	A good student does not fill up the margins of books when he reads them.....	( )	( )	( )	( )
61.	A good professor spends considerable time in determining grades accurately.....	( )	( )	( )	( )
62.	A highly competent professor does not learn a lot from his students.....	( )	( )	( )	( )
63.	A good student takes notes that accurately reflect what is said in lectures.....	( )	( )	( )	( )
64.	A good professor presents his material so that a good student's notes are about the same as his notes.....	( )	( )	( )	( )
65.	I don't like a professor who talks about things he doesn't fully understand.....	( )	( )	( )	( )
66.	I don't have a lot of respect for a professor who backs down very often.....	( )	( )	( )	( )
67.	If the educational system functioned ideally, there would be no need for examinations.....	( )	( )	( )	( )
68.	A good professor is just a good student who gets paid for being a student.....	( )	( )	( )	( )
69.	Multiple choice examinations are a big improvement over true-false ones.....	( )	( )	( )	( )
70.	A good student realizes the importance of the required courses in his program.....	( )	( )	( )	( )
71.	I don't like to hear a professor attack the policies of the university.....	( )	( )	( )	( )
72.	The better the professor the harder it is to get a good grade in his course.....	( )	( )	( )	( )
73.	A good student purposely tries to complicate the issues raised in class.....	( )	( )	( )	( )
74.	My best professors seem to be too busy to discuss things much out of class.....	( )	( )	( )	( )
75.	I like a professor who talks a little bit above my head much of the time.....	( )	( )	( )	( )
76.	I like a professor who is able to hold off student questions till near the end of class.....	( )	( )	( )	( )

A -3, Faculty Identification Measure

w.. consider those faculty members from whom you have taken upper
ivision courses. How do you think each one of these faculty members
uld respond to the statements on the previous pages? What, in general,
you think his or her responses would be like

Faculty Member
(write in name)

(1) _____ very similar to the way I responded — (1) _____
_____ more similar than opposite to my responses
_____ about half similar and half opposite mine
_____ more opposite than similar to my responses
_____ almost completely opposite to my responses

(2) _____ very similar to the way I responded — (2) _____
_____ more similar than opposite to my responses
_____ about half similar and half opposite mine
_____ more opposite than similar to my responses
_____ almost completely opposite to my responses

(3) _____ very similar to the way I responded — (3) _____
_____ more similar than opposite to my responses
_____ about half similar and half opposite mine
_____ more opposite than similar to my responses
_____ almost completely opposite to my responses

(4) _____ very similar to the way I responded — (4) _____
_____ more similar than opposite to my responses
_____ about half similar and half opposite mine
_____ more opposite than similar to my responses
_____ almost completely opposite to my responses

(5) _____ very similar to the way I responded — (5) _____
_____ more similar than opposite to my responses
_____ about half similar and half opposite mine
_____ more opposite than similar to my responses
_____ almost completely opposite to my responses

(6) _____ very similar to the way I responded — (6) _____
_____ more similar than opposite to my responses
_____ about half similar and half opposite mine
_____ more opposite than similar to my responses
_____ almost completely opposite to my responses

(7) _____ very similar to the way I responded — (7) _____
_____ more similar than opposite to my responses
_____ about half similar and half opposite mine
_____ more opposite than similar to my responses
_____ almost completely opposite to my responses

(8) _____ very similar to the way I responded — (8) _____
_____ more similar than opposite to my responses
_____ about half similar and half opposite mine
_____ more opposite than similar to my responses
_____ almost completely opposite to my responses

(Cont'd from last page)

Faculty Member

(Write in number)

(9)_____very similar to the way I responded (9)_____
_____more similar than opposite to my reasons
_____about half similar and half opposite mine
_____more opposite than similar to my responses
_____almost completely opposite to my responses

(10)_____very similar to the way I responded (10)_____
_____more similar than opposite to my responses
_____about half similar and half opposite mine
_____more opposite than similar to my responses
_____almost completely opposite to my responses

(11)_____very similar to the way I responded (11)_____
_____more similar than opposite to my responses
_____about half similar to my responses
_____more opposite than similar to my responses
_____almost completely opposite to my responses

(12)_____very similar to the way I responded (12)_____
_____more similar than opposite to my responses
_____about half similar and half opposite mine
_____more opposite than similar to my responses
_____almost completely opposite to my responses

(13)_____very similar to the way I responded (13)_____
_____more similar than opposite to my responses
_____about half similar and half opposite mine
_____more opposite than similar to my responses
_____almost completely opposite to my responses

(14)_____very similar to the way I responded (14)_____
_____more similar than opposite to my responses
_____about half similar and half opposite mine
_____more opposite than similar to my responses
_____almost completely opposite to my responses

(15)_____very similar to the way I responded (15)_____
_____more similar than opposite to mine
_____about half similar and half opposite
_____more opposite than similar to my responses
_____almost completely opposite to my responses

(16)_____very similar to the way I responded (16)_____
_____more similar than opposite to my responses
_____about half similar and half opposite mine
_____more opposite than similar to my responses
_____almost completely opposite to my responses

A - 4, Crs. Evlu.

INDIVIDUAL COURSE EVALUATIONS

On each of the three suggested scales, please evaluate each of the courses you have taken as a graduate student. Indicate by number only the faculty member who taught the course (the number is the one you assigned the faculty member on the previous page).

Course (write in)

interesting____:____:____:____:____:____:____boring ____________
worthless____:____:____:____:____:____:____valuable
synthesize____:____:____:____:____:____:____memorize
faculty member #( )

interesting____:____:____:____:____:____:____boring ____________
worthless____:____:____:____:____:____:____valuable
synthesize____:____:____:____:____:____:____memorize
faculty member#( )

interesting____:____:____:____:____:____:____boring ____________
worthless____:____:____:____:____:____:____valuable
synthesize____:____:____:____:____:____:____memorize
faculty member #( )

interesting____:____:____:____:____:____:____boring ____________
worthless____:____:____:____:____:____:____valuable
synthesize____:____:____:____:____:____:____memorize
faculty member#( )

interesting____:____:____:____:____:____:____boring
worthless____:____:____:____:____:____:____valuable ____________
synthesize____:____:____:____:____:____:____memorize
faculty member#( )

interesting____:____:____:____:____:____:____boring
worthless____:____:____:____:____:____:____valuable ____________
synthesize____:____:____:____:____:____:____memorize
faculty member#( )

interesting____:____:____:____:____:____:____boring
worthless____:____:____:____:____:____:____valuable ____________
synthesize____:____:____:____:____:____:____memorize
faculty member#( )

interesting____:____:____:____:____:____:____boring
worthless____:____:____:____:____:____:____valuable
synthesize____:____:____:____:____:____:____memorize ____________
faculty member#( )

interesting____:____:____:____:____:____:____boring
worthless____:____:____:____:____:____:____valuable ____________
synthesize____:____:____:____:____:____:____memorize
faculty member#( )

INDIVIDUAL COURSE EVALUATIONS

On each of the three suggested scales, please evaluate each of the courses you have taken as a graduate student. Indicate by number only the faculty member who taught the course (the number is the one you assigned the faculty member on the previous page).

Course (write in)

interesting____:____:____:____:____:____:____boring ________________
worthless____:____:____:____:____:____:____valuable
synthesize____:____:____:____:____:____:____memorize
faculty member #( )

interesting____:____:____:____:____:____:____boring ________________
worthless____:____:____:____:____:____:____valuable
synthesize____:____:____:____:____:____:____memorize
faculty member#( )

interesting____:____:____:____:____:____:____boring ________________
worthless____:____:____:____:____:____:____valuable
synthesize____:____:____:____:____:____:____memorize
faculty member #( )

interesting____:____:____:____:____:____:____boring ________________
worthless____:____:____:____:____:____:____valuable
synthesize____:____:____:____:____:____:____memorize
faculty member#( )

interesting____:____:____:____:____:____:____boring
worthless____:____:____:____:____:____:____valuable ________________
synthesize____:____:____:____:____:____:____memorize
faculty member#( )

interesting____:____:____:____:____:____:____boring
worthless____:____:____:____:____:____:____valuable ________________
synthesize____:____:____:____:____:____:____memorize
faculty member#( )

interesting____:____:____:____:____:____:____boring
worthless____:____:____:____:____:____:____valuable ________________
synthesize____:____:____:____:____:____:____memorize
faculty member#( )

interesting____:____:____:____:____:____:____boring
worthless____:____:____:____:____:____:____valuable
synthesize____:____:____:____:____:____:____memorize ________________
faculty member#( )

interesting____:____:____:____:____:____:____boring
worthless____:____:____:____:____:____:____valuable ________________
synthesize____:____:____:____:____:____:____memorize
faculty member#( )

A-5, OPE

OVERALL PROGRAM EVALUATION

Please indicate your overall evaluation of your present program, using the following scales. Mark each scale once. Do not skip any.

static : ___ : ___ : ___ : ___ : ___ : ___ : ___ : dynamic

practical : ___ : ___ : ___ : ___ : ___ : ___ : ___ : theoretical

loose : ___ : ___ : ___ : ___ : ___ : ___ : ___ : tight

deliberate : ___ : ___ : ___ : ___ : ___ : ___ : ___ : accidental

humorous : ___ : ___ : ___ : ___ : ___ : ___ : ___ : serious

formal : ___ : ___ : ___ : ___ : ___ : ___ : ___ : informal

synthesize : ___ : ___ : ___ : ___ : ___ : ___ : ___ : memorize

clear : ___ : ___ : ___ : ___ : ___ : ___ : ___ : hazy

rigid : ___ : ___ : ___ : ___ : ___ : ___ : ___ : flexible

chaotic : ___ : ___ : ___ : ___ : ___ : ___ : ___ : orderly

pedestrain : ___ : ___ : ___ : ___ : ___ : ___ : ___ : scholarly

honest : ___ : ___ : ___ : ___ : ___ : ___ : ___ : dishonest

easy : ___ : ___ : ___ : ___ : ___ : ___ : ___ : hard

shallow : ___ : ___ : ___ : ___ : ___ : ___ : ___ : deep

innovative : ___ : ___ : ___ : ___ : ___ : ___ : ___ : traditional

fair : ___ : ___ : ___ : ___ : ___ : ___ : ___ : unfair

abstract : ___ : ___ : ___ : ___ : ___ : ___ : ___ : concrete

worthless : ___ : ___ : ___ : ___ : ___ : ___ : ___ : valuable

hostile : ___ : ___ : ___ : ___ : ___ : ___ : ___ : friendly

work : ___ : ___ : ___ : ___ : ___ : ___ : ___ : play

boring : ___ : ___ : ___ : ___ : ___ : ___ : ___ : interesting

timid : ___ : ___ : ___ : ___ : ___ : ___ : ___ : bold

varied : ___ : ___ : ___ : ___ : ___ : ___ : ___ : repititive

obvious : ___ : ___ : ___ : ___ : ___ : ___ : ___ : subtle

autocratic : ___ : ___ : ___ : ___ : ___ : ___ : ___ : democratic

open : ___ : ___ : ___ : ___ : ___ : ___ : ___ : closed

bad : ___ : ___ : ___ : ___ : ___ : ___ : ___ : good

A - 6, Questionnaire

(1) How much time would you estimate you spend reading journal articles and/or monographs, other than those that are assigned reading for a course?

____a great deal of time
____a considerable amount of time
____not very much time
____almost no time at all
____never

(2) In your estimation. how would you guess this compares with other undergraduate students?

____ a great deal more time than the average
____considerably more time than the average
____about the same as the average
____somewhat less than the average
____a great deal less than the average

(3) How much time do you spend interacting informally (out of class) with faculty members about your ideas?

____a great deal of time
____a considerable amount of time
____not very much time
____almost no time at all
____never

(4) How would you guess this compared with other undergraduate students?

____a great deal more time than the average
____considerably more time than the average
____about the same as the average
____somewhat less than the average
____a great deal less time than the average

(5) How much time do you spend interacting informally with fellow students tossing around ideas?

____a great deal of time
____a considerable amount of time
____not very much time
____almost no time at all
____never

(6) How would you guess this compared with other undergraduate students?

____a great deal more than the average
____considerably more time than the average
____about the same as the average
____somewhat less time than the average
____a great deal less time than the average

(7) Since entering your program would you say that your personal objectives have:

____become much more clearly defined
____become somewhat more clearly defined
____remained about the same
____become less clearly defined
____become much less clearly defined

(8) Since entering your college program would you say that your career objectives have:

____become much more clearly defined
____become somewhat more clearly defined
____remained about the same
____become somewhat less clearly defined
____become much less clearly defined

(9) Rank order the following reasons for enrolling in your program. Think back to why you enrolled in the first place. Rank from (1) most important to (5) least important. Be candid!

__( ) to obtain a better job or advancement in business
__( ) advancement in your chosen profession
__( )preparation for graduate program
__( ) to improve yourself in your own eyes
__( ) to advance your social status

(10) Would you say your objectives have changed since then?

_____ no
_____ yes

(11) If you responded "yes" to the above, please rerank.

__( ) to obtain a better job or advancement in business
__( ) advancement in your chosen profession
__( ) preparation for a graduate program
__( ) to improve yourself in your own eyes
__( ) to advance your social status

(12) If you had it all to do over again would you:

____enter the same program at WSU
____enter a different program at WSU (specify)_____
____enter a similar program at a different institution
____enter a totally different program at a different institution
____not enter college at all

(13) Briefly state your reasons for the above:

(14) Please comment on any aspect of your college experience that you feel would be helpful in our evaluation.

(15) Undergraduate Major_____

(16) Did you ever switch undergraduate majors? ____no
____yes ____no. of times

(17) Final undergraduate G. P. A. _____

(18) In what graduate program are you enrolled? _____MBA
_____MS Accounting
_____MA Economics
_____MS Administration(thesis)
_____MS Administration(non-thesis)

(19) Have you ever switched graduate programs? ____no
____MS to MBA
____MBA to MS
____other(specify)_____

(20) MS Administration students Only)_____thesis to non-thesis
_____non-thesis to thesis
_____have not changed

(21) What is (are) your special area(s) within your program?

(22) Hours completed as of last semester_____

(23) When did you enroll in graduate school? _____semester _____year

(24) G. P. A. (as of last semester) _____

(25) Do you have a graduate assistantship? _____no
_____yes

(26) Do you have an outside job? _____no
_____yes_____hours per week.

(27) Age_____

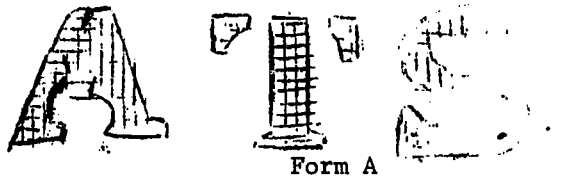
(28) Martial status _____single
_____married

Name_____

(It is important that we know those who have already cooperated in this study so please fill in your name. However, to insure that your responses remain completely annonymous, detach at the dotted line and hand this part in separately.)

THANK YOU FOR YOUR COOPERATION. YOUR EFFORT IS APPRECIATED AND WILL HELP US IN EVALUATING THE GRADUATE PROGRAMS IN THE COLLEGE OF BUSINESS.

A -7, Tolerance for Ambiguity



Form A

	SA	A	D	SD
1. A problem has little attraction for me if I don't think it has a solution.....	( )	( )	( )	( )
2. I am just a little uncomfortable with people unless I can understand their behavior.....	( )	( )	( )	( )
3. There's a right way and a wrong way to do almost everything	( )	( )	( )	( )
4. I would rather bet 1 to 6 on a long shot than 3 to 1 on a probable winner.....	( )	( )	( )	( )
5. The way to understand complex problems is to be concerned with their larger aspects instead of breaking them into smaller pieces.....	( )	( )	( )	( )
6. I get pretty anxious when I'm in a social situation over which I have no control.....	( )	( )	( )	( )
7. Practically every problem has a solution.....	( )	( )	( )	( )
8. It bothers me when I am unable to follow another person's train of thought.....	( )	( )	( )	( )
9. I have always felt that there's a clear difference between right and wrong.....	( )	( )	( )	( )
10. It bothers me when I don't know how other people react to me	( )	( )	( )	( )
11. Nothing gets accomplished in this world unless you stick to some basic rules.....	( )	( )	( )	( )
12. If I were a doctor, I would prefer the uncertainties of a psychiatrist to the clear and definite work of someone like a surgeon or X-ray specialist.....	( )	( )	( )	( )
13. Vague and impressionistic pictures really have little appeal for me.....	( )	( )	( )	( )
14. If I were a scientist, it would bother me that my work would never be completed (because science will always make me discoveries).....	( )	( )	( )	( )
15. Before an examination, I feel less anxious if I know how many questions there will be.....	( )	( )	( )	( )
16. The best part of working a jigsaw puzzle is putting in the last piece.....	( )	( )	( )	( )

A -8, Dogmatism Scale

M R S

FORM S

	SA	A	D	SD
1. In this complicated world of ours the only way we can know what's going on is to rely on leaders or experts who can be trusted	( )	( )	( )	( )
2. My blood boils whenever a person stubbornly refuses to admit he's wrong	( )	( )	( )	( )
3. There are two kinds of people in this world: Those who are for the truth and those who are against the truth	( )	( )	( )	( )
4. Most people just don't know what's good for them	( )	( )	( )	( )
5. Of all the different philosophies which exist in this world there is probably only one which is correct	( )	( )	( )	( )
6. The highest form of government is a democracy and the highest form of democracy is a government run by those who are most intelligent	( )	( )	( )	( )
7. The main thing is life is for a person to want to do something important	( )	( )	( )	( )
8. I'd like it if I could find someone who would tell me how to solve my personal problems	( )	( )	( )	( )
9. Most of the ideas which get printed nowadays aren't worth the paper they are printed on	( )	( )	( )	( )
10. Man on his own is a helpless and miserable creature	( )	( )	( )	( )
11. It is only when a person devotes himself to an ideal or cause that life becomes meaningful	( )	( )	( )	( )
12. Most people just don't give a "damm" for others	( )	( )	( )	( )
13. To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side	( )	( )	( )	( )
14. It is often desirable to reserve judgment about what's going on until one has had a chance to hear the opinions of those one respects	( )	( )	( )	( )
15. The *present* is all too often full of unhappiness, It is only the *future* that counts	( )	( )	( )	( )
16. The United States and Russia have just about nothing in common	( )	( )	( )	( )
17. In a discussion I often find it necessary to repeat myself several times to make sure I am being understood	( )	( )	( )	( )
18. While I don't like to admit this even to myself, my secret ambition is to become a great man, like Einstein, or Beethoven, or Shakespear	( )	( )	( )	( )
19. Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups	( )	( )	( )	( )
20. It is better to be a dead hero than to be a live coward	( )	( )	( )	( )

A - 9, RPM

On this questionnaire you will be able to express how you feel about some important questions. At the right of each question are some spaces to mark whether this is True(T) or False(F). If you really can't decide, mark under the question mark(?) and go on quickly to the next question.

Name _____ Date _____

FORM A

		T	?	F
1.	I like to be objective	( )	( )	( )
2.	I sometimes offend people	( )	( )	( )
3.	I seldom say what others want to hear	( )	( )	( )
4.	I am what I am	( )	( )	( )
5.	I've never met a man I didn't like	( )	( )	( )
6.	I want people to like me	( )	( )	( )
7.	I respect my boss	( )	( )	( )
8.	I don't mind being bawled out if I deserve it	( )	( )	( )
9.	I dislike people more powerful than I	( )	( )	( )
10.	I'm angry about my lack of success	( )	( )	( )
11.	I often wonder if anyone really likes me	( )	( )	( )
12.	I like to argue with my friends	( )	( )	( )
13.	I need facts to make decisions	( )	( )	( )
14.	I have a large number of friends	( )	( )	( )
15.	I'm usually lucky	( )	( )	( )
16.	Being nice doesn't hurt my effectiveness	( )	( )	( )
17.	I like to tell others what to do	( )	( )	( )
18.	I don't respect too many people	( )	( )	( )
19.	I (would) demand obedience from my children	( )	( )	( )
20.	I dislike weaklings	( )	( )	( )
21.	I like most people	( )	( )	( )
22.	I'm a nice person	( )	( )	( )
23.	I'm easily hurt by criticism	( )	( )	( )
24.	I always live by the Golden Rule	( )	( )	( )
25.	There are wrong and right ways of doing things	( )	( )	( )
26.	Arguing can be fun	( )	( )	( )
27.	A discussion clears the air	( )	( )	( )
28.	Most people give up too easily	( )	( )	( )
29.	Cooperation means to agree to the disagreeable	( )	( )	( )
30.	A soft answer turns away anger	( )	( )	( )
31.	Love your enemies	( )	( )	( )
32.	It is necessary to fit in with the power structure	( )	( )	( )
33.	Most successful people are snobs	( )	( )	( )
34.	A good scrap makes people better friends	( )	( )	( )
35.	Power only understands power	( )	( )	( )
36.	A good enemy is more fun than a good friend	( )	( )	( )
37.	Life is its own reward	( )	( )	( )
38.	It is hard to dislike someone who likes you	( )	( )	( )
39.	People seem to like me	( )	( )	( )
40.	Nice guys finish last	( )	( )	( )
41.	Most people are disgusting	( )	( )	( )
42.	Power is more important than love	( )	( )	( )
43.	Weakness is sinful	( )	( )	( )
44.	Influential friends help one succeed	( )	( )	( )
45.	Most people need help	( )	( )	( )
46.	Fighting makes me nervous	( )	( )	( )
47.	The world needs more peacemakers	( )	( )	( )
48.	One should accept criticism	( )	( )	( )

(CONTINUED)

		T	?	F
49.	I continuously fight for my ideas	( )	( )	( )
50.	I often correct people who are wrong	( )	( )	( )
51.	I don't give up easily	( )	( )	( )
52.	I want to change things	( )	( )	( )
53.	I don't like to hear people complain.....	( )	( )	( )
54.	I like clear-cut instructions	( )	( )	( )
55.	I am loyal to those above me	( )	( )	( )
56.	I want my boss to like me	( )	( )	( )
57.	I get angry very often	( )	( )	( )
58.	I resent being ignored	( )	( )	( )
59.	I don't let people treat me badly	( )	( )	( )
60.	I enjoy football	( )	( )	( )
61.	I make friends easily	( )	( )	( )
62.	I often have to accept criticism	( )	( )	( )
63.	I trust most people	( )	( )	( )
64.	I'm surprised by other people's good ideas	( )	( )	( )
65.	I want more respect	( )	( )	( )
66.	I just can't stand incompetence	( )	( )	( )
67.	I like practical jokes	( )	( )	( )
68.	I take orders only from someone better than I ..	( )	( )	( )
69.	I want to keep people happy	( )	( )	( )
70.	I have as many faults as the next guy	( )	( )	( )
71.	I avoid arguments	( )	( )	( )
72.	I listen for complaints	( )	( )	( )
73.	People should always tell the truth	( )	( )	( )
74.	Employees have their own good ideas	( )	( )	( )
75.	Snap judgments are dangerous	( )	( )	( )
76.	One should have time to think problems through ..	( )	( )	( )
77.	Getting along is more important than being right	( )	( )	( )
78.	It is best to give in to stubborn people	( )	( )	( )
79.	Never argue with a policeman	( )	( )	( )
80.	The boss is usually right	( )	( )	( )
81.	It is healthy to be angry once in awhile.....	( )	( )	( )
82.	Conflict is necessary for growth	( )	( )	( )
83.	People should try harder to get along.....	( )	( )	( )
84.	Arguments leads to better friendships.....	( )	( )	( )
85.	Love is more important than power	( )	( )	( )
86.	Ideas can usually be improved upon by others....	( )	( )	( )
87.	Time passes very quickly	( )	( )	( )
88.	People want to be spoken to	( )	( )	( )
89.	People flatter you when they want something	( )	( )	( )
90.	The ends justify the means	( )	( )	( )
91.	Most people can't help us	( )	( )	( )
92.	Most people are waiting to be lead	( )	( )	( )
93.	Other people needs must be considered	( )	( )	( )
94.	People try to take advantage of my friendship ..	( )	( )	( )
95.	One should accept criticism	( )	( )	( )
96.	Good management should make the world a better place to live	( )	( )	( )

APPENDIX B -1

DESCRIPTIVE STATISTICS OF MASTER ANALYSIS

N = 210

V=	NAME	MEAN	SIGMA
1	LEM=1	1.67666E+01	4.83092E+00
2	LEM=2	5.70476E+00	2.35762E+00
3	LEM=3	1.19000E+01	2.97752E+00
4	LEM=4	6.67143E+00	2.45177E+00
5	LEM=5	7.18095E+00	1.73223E+00
6	LEM=6	8.99524E+00	3.39927E+00
7	LEM=7	1.50714E+01	3.71467E+00
8	LEM=8	1.26952E+01	2.63079E+00
9	LEM=9	9.08571E+00	2.60884E+00
10	LEM=10	5.02857E+00	1.29007E+00
11	OPE=1	3.94666E+01	8.24465E+00
12	OPE=2	3.20666E+01	9.74786E+00
13	OPE=3	2.59666E+01	6.67315E+00
14	OPE=4	4.28286E+01	9.84380E+00
15	OPE=5	1.02381E+01	4.00484E+00
16	OPE=6	9.21905E+00	2.93790E+00
17	QST 1 READ TIME	2.00000E+00	9.43373E-01
18	QST 2 COMPARE	2.15238E+00	7.79906E-01
19	QST 3 FAC INTERA	1.74286E+00	9.28329E-01
20	QST 4 COMPARE	1.89524E+00	7.93805E-01
21	QST 5 STUDT INTE	2.28095E+00	1.02697E+00
22	QST 6 COMPARE	2.02857E+00	8.90755E-01
23	QST 7 PRSNL OBJE	2.30476E+00	1.28759E+00
24	QST 8 CAREER OBJ	2.33333E+00	1.23480E+00
25	QST 9A JOB	2.15238E+00	1.26250E+00
26	QST 9B PROFESSIO	2.61428E+00	1.08438E+00
27	QST 9C GRAD PROG	3.90476E+00	1.27939E+00
28	QST 9D SELF IMPR	2.59047E+00	1.23114E+00
29	QST 9E SOC STATU	3.76667E+00	1.23267E+00
30	QST 10 OBJ CHANG	3.00000E-01	4.69653E-01
31	QST 12 DO OVER	2.82857E+00	1.46381E+00
32	TOL =1	1.84047E+01	3.51801E+00
33	TOL =2	1.22476E+01	2.69425E+00
34	TOL =3	3.45238E+00	1.19814E+00
35	TOL =4	7.27619E+00	1.65721E+00
36	RPM FACTOR C	2.38524E+01	4.37074E+00
37	RPM FACTOR I	1.71809E+01	4.78496E+00
38	RPM FACTOR R	1.55143E+01	4.99016E+00
39	RPM FACTOR Q	2.23238E+01	4.22351E+00
40	RPM FACTOR A	1.44238E+01	4.98384E+00
41	RPM FACTOR P	2.23095E+01	4.23308E+00
42	AVG CRS EVAL =1	4.20047E+01	7.78827E+00
43	AVG CRS EVAL =2	3.30476E+01	9.88348E+00
44	FACULTY EVALUATI	2.53238E+01	6.64630E+00
45	PROGRAM ID	6.61428E+00	1.80875E+00
46	0=UNDGRAD 1=GRAD	2.76190E-01	4.48180E-01

APPENDIX TABLE B - 2

MASTER CORRELATION MATRIX

N = 210

APPENDIX TABLE B - 3

MASTER PRINCIPLE FACTOR MATRIX

N = 210

	1	2	3	4	5	6	7	8	9	10
1	0.086	0.643	-0.180	-0.001	0.229	0.098	0.142	-0.197	0.154	0.061
2	-0.147	0.439	-0.119	-0.086	0.081	-0.235	0.334	0.174	-0.060	-0.238
3	0.045	-0.220	0.003	0.359	-0.145	-0.273	-0.022	0.202	-0.151	-0.345
4	-0.054	0.591	-0.127	0.066	0.108	-0.178	0.185	-0.023	0.058	-0.056
5	0.118	-0.348	0.196	0.322	-0.058	-0.096	-0.053	0.189	0.147	-0.059
6	-0.145	0.629	-0.096	-0.160	0.144	-0.100	0.137	-0.039	0.094	0.132
7	0.080	0.695	-0.158	0.085	0.135	-0.052	0.221	-0.081	0.160	-0.048
8	0.118	0.023	0.071	0.469	-0.168	-0.221	0.144	0.218	0.091	-0.053
9	0.084	0.294	-0.136	0.347	-0.009	-0.318	0.330	0.245	0.025	-0.215
10	0.011	0.024	0.213	0.131	-0.027	-0.111	-0.110	-0.027	0.245	0.294
11	0.806	0.051	0.102	-0.102	-0.184	0.082	0.039	-0.036	-0.046	-0.060
12	0.647	-0.114	-0.395	-0.122	0.037	-0.127	0.138	-0.018	-0.093	0.151
13	0.789	0.073	-0.011	-0.009	-0.157	0.130	0.045	-0.013	0.018	-0.139
14	0.878	0.057	0.037	-0.073	-0.180	0.066	0.000	-0.049	-0.038	-0.039
15	0.754	-0.090	-0.291	-0.111	-0.049	-0.076	0.043	0.035	-0.076	0.140
16	0.426	-0.187	-0.288	-0.147	0.009	-0.153	0.084	0.046	-0.020	0.291
17	0.165	0.015	0.562	0.051	0.182	-0.194	0.002	0.157	0.090	0.257
18	0.012	0.089	0.458	0.123	0.143	-0.323	0.015	0.143	-0.084	0.264
19	0.068	-0.206	0.284	0.261	0.081	0.084	0.352	0.010	0.383	0.089
20	-0.084	-0.190	0.359	0.208	0.016	-0.048	0.287	0.042	0.171	-0.023
21	0.138	0.175	0.660	0.130	-0.041	0.136	0.147	-0.147	0.084	0.054
22	-0.020	0.052	0.471	0.139	-0.042	0.093	0.062	-0.108	-0.009	0.137
23	0.261	0.283	0.639	-0.126	-0.086	0.142	0.131	-0.129	-0.116	-0.149
24	0.284	0.301	0.524	-0.117	-0.069	0.144	0.137	-0.196	-0.147	-0.096
25	-0.078	-0.268	-0.097	0.316	0.373	-0.321	0.171	-0.371	-0.368	0.084
26	-0.124	-0.009	0.106	0.165	-0.535	-0.255	-0.078	-0.419	-0.007	0.107
27	0.019	0.213	-0.112	-0.296	-0.515	-0.201	-0.289	0.064	0.473	-0.201
28	0.013	0.238	0.078	-0.119	-0.110	0.494	0.140	0.658	-0.204	0.255
29	0.148	-0.164	0.037	-0.047	0.739	0.281	0.057	0.018	0.093	-0.239
30	-0.104	-0.002	-0.017	0.028	-0.178	0.026	0.157	0.017	0.126	0.304
31	0.039	0.245	0.603	-0.205	-0.043	-0.093	-0.054	-0.065	-0.173	-0.186
32	-0.055	0.446	-0.253	-0.092	0.019	0.052	-0.059	-0.129	0.130	0.156
33	0.024	0.487	-0.223	0.036	-0.149	-0.053	0.114	0.037	0.020	0.012
34	-0.073	0.419	-0.135	-0.052	-0.086	0.036	0.037	0.009	-0.140	0.094
35	0.072	-0.176	0.161	0.102	0.236	0.101	-0.047	-0.055	0.180	-0.021
36	0.222	0.161	0.143	0.427	-0.012	0.096	-0.312	0.093	0.086	0.027
37	0.161	0.392	-0.106	0.316	0.232	0.113	-0.297	0.012	-0.045	-0.019
38	-0.022	0.291	-0.065	0.479	-0.107	0.022	-0.175	0.094	-0.195	0.049
39	0.299	0.234	0.014	0.400	0.205	0.122	-0.323	-0.015	0.036	-0.048
40	-0.142	0.424	-0.006	0.335	-0.172	0.010	-0.179	0.039	-0.255	0.125
41	0.259	0.257	-0.190	0.368	0.193	0.111	-0.401	-0.107	0.098	0.003
42	0.603	-0.122	0.022	-0.070	0.094	-0.151	-0.065	0.038	0.055	-0.026
43	0.425	-0.122	-0.120	-0.058	0.290	-0.312	-0.010	0.036	0.084	0.054
44	0.315	0.097	0.151	0.003	-0.040	-0.272	0.001	-0.004	-0.126	0.067
45	0.137	-0.350	-0.433	0.405	-0.123	0.230	0.311	-0.116	0.066	0.056
46	-0.006	0.129	0.275	-0.435	0.344	-0.415	-0.360	0.188	0.028	0.061
(.1HP	43	26	28	33	41	37	41	59	57	54
(.2HP	70	48	63	63	78	70	74	87	87	76

	(LOADINGS	MEAN P/F	MEAN (P/F	SIGMA	SIGMA (
.1 HP	42.0	19.3	42.0	5.31	11.55
.2 HP	71.5	32.9	71.5	5.45	11.84

APPENDIX B - 4

VARIMAX MASTER FACTOR MATRIX
N = 210

	1	2	3	4	5	6	7	8	9	10
1	0.054	0.710	0.075	0.199	0.124	-0.162	0.076	-0.038	-0.006	0.035
2	-0.104	0.542	0.011	-0.192	0.036	+0.316	-0.114	0.071	-0.008	-0.200
3	0.004	-0.273	-0.058	0.089	-0.090	+0.571	0.007	-0.094	-0.034	-0.169
4	-0.054	0.644	0.032	0.083	-0.023	+0.152	-0.068	-0.045	-0.014	-0.022
5	0.044	-0.401	-0.013	0.109	0.075	+0.340	0.007	-0.036	0.047	0.232
6	-0.104	0.686	0.019	-0.011	-0.032	-0.115	-0.168	0.043	0.020	0.047
7	0.045	0.755	0.089	0.169	0.060	+0.088	0.044	-0.039	0.043	0.025
8	0.061	-0.007	0.006	0.156	-0.115	+0.546	0.075	0.012	0.004	0.225
9	0.072	0.376	-0.058	0.052	-0.010	+0.627	0.037	0.014	-0.049	0.001
10	-0.015	-0.032	0.032	0.127	-0.088	-0.039	-0.139	-0.070	0.055	0.425
11	0.740	-0.048	0.354	0.100	0.000	+0.013	0.088	0.050	0.151	-0.058
12	0.766	0.060	-0.221	-0.055	0.014	-0.029	0.087	-0.002	-0.126	-0.069
13	0.707	-0.001	0.269	0.173	0.067	+0.073	0.187	0.039	0.189	-0.087
14	0.817	-0.039	0.305	0.159	-0.012	+0.007	0.097	0.027	0.152	-0.059
15	0.828	-0.012	-0.117	0.036	-0.019	-0.023	0.060	0.054	-0.018	-0.053
16	0.566	-0.030	-0.274	-0.123	-0.044	-0.081	-0.014	0.044	-0.100	0.089
17	0.089	-0.100	0.306	0.047	0.098	+0.098	-0.418	0.080	-0.102	0.438
18	-0.020	-0.013	0.220	0.043	-0.077	+0.175	-0.443	0.061	-0.239	0.333
19	-0.010	-0.100	0.152	-0.088	0.284	+0.197	0.216	-0.033	-0.022	0.529
20	-0.146	-0.150	0.207	-0.150	0.142	+0.276	0.064	-0.041	-0.071	0.339
21	-0.035	-0.001	0.669	0.082	0.042	+0.025	-0.010	0.004	-0.013	0.343
22	-0.123	-0.082	0.415	0.063	-0.053	-0.020	-0.018	0.026	-0.099	0.278
23	0.097	0.059	0.800	-0.011	0.027	-0.010	-0.092	0.057	0.055	0.005
24	0.146	0.116	0.729	0.010	-0.004	-0.067	-0.041	0.029	-0.006	-0.016
25	-0.012	-0.074	-0.132	-0.014	0.009	+0.103	0.015	-0.379	-0.749	-0.025
26	-0.087	-0.083	0.138	-0.025	-0.611	+0.012	0.122	-0.390	0.054	0.149
27	0.054	0.124	-0.093	-0.065	-0.265	+0.018	-0.117	-0.185	0.808	-0.033
28	-0.014	0.082	0.095	0.012	-0.011	+0.039	0.024	0.931	0.078	0.017
29	0.036	-0.049	0.018	0.092	0.822	-0.103	-0.017	-0.007	-0.195	-0.102
30	-0.041	0.059	-0.073	-0.124	-0.177	-0.055	0.118	0.109	0.012	0.302
31	-0.072	0.009	0.630	-0.051	-0.053	+0.017	-0.357	-0.030	0.058	-0.103
32	-0.019	0.475	-0.113	0.132	-0.094	-0.248	0.017	-0.011	0.109	0.012
33	0.050	0.495	-0.028	0.083	-0.199	+0.088	0.071	0.083	0.110	-0.056
34	-0.044	0.381	0.022	0.063	-0.213	+0.079	-0.002	0.158	-0.010	-0.109
35	-0.010	-0.169	0.059	0.105	0.304	-0.035	0.008	-0.099	-0.029	0.168
36	0.054	-0.068	0.108	0.575	-0.022	+0.131	-0.010	0.045	0.089	0.154
37	0.032	0.241	-0.008	0.608	0.076	-0.004	-0.044	0.034	-0.053	-0.084
38	-0.107	0.114	-0.011	0.486	-0.272	+0.207	0.067	0.125	-0.114	-0.027
39	0.126	0.057	0.070	0.650	0.133	+0.051	-0.004	-0.039	-0.016	0.014
40	-0.199	0.217	0.068	0.401	-0.402	+0.080	-0.015	0.153	-0.103	-0.046
41	0.131	0.131	-0.107	0.679	0.081	-0.066	0.044	-0.126	0.025	-0.012
42	0.586	-0.121	0.046	0.078	0.157	+0.066	-0.139	-0.087	0.049	0.016
43	0.475	0.005	-0.181	0.012	0.217	+0.079	-0.232	-0.163	-0.100	0.064
44	0.316	0.036	0.169	0.038	-0.143	+0.126	-0.219	-0.056	-0.085	0.039
45	0.176	-0.128	-0.302	0.019	0.023	+0.133	0.689	-0.029	-0.176	0.117
46	0.024	0.033	0.006	-0.047	0.133	-0.130	-0.832	-0.051	0.088	-0.023

APPENDIX B - 5

PROMAX MASTER VECTOR STRUCTURE
N = 210

	1	2	3	4	5	6	7	8	9	10
1	0.043	0.693	0.082	0.188	0.135	-0.011	0.079	-0.077	-0.018	0.117
2	-0.097	0.337	0.082	-0.253	0.105	-0.505	-0.075	0.041	0.015	-0.036
3	0.048	-0.347	-0.034	0.025	-0.046	-0.461	0.027	-0.080	0.026	-0.107
4	-0.076	0.521	0.041	0.030	0.010	-0.300	-0.033	-0.073	0.022	0.038
5	0.011	-0.276	-0.130	0.099	0.014	-0.167	0.010	-0.005	0.099	0.226
6	-0.166	0.563	0.009	-0.032	-0.012	-0.071	-0.144	0.016	0.031	0.027
7	0.050	0.682	0.083	0.118	0.080	-0.257	0.066	-0.077	0.058	0.140
8	0.043	-0.015	-0.102	0.052	-0.137	-0.435	0.120	0.030	0.071	0.231
9	0.024	0.253	-0.066	-0.060	0.020	-0.676	0.082	0.007	0.025	0.145
10	-0.120	0.080	-0.134	0.133	-0.184	0.137	-0.121	-0.044	0.110	0.240
11	0.815	-0.020	0.337	0.034	-0.030	0.010	0.088	0.037	0.067	-0.019
12	0.514	0.061	-0.135	-0.073	-0.026	-0.023	0.041	0.012	-0.122	-0.058
13	0.793	0.038	0.265	0.114	0.049	-0.062	0.166	0.021	0.110	0.025
14	0.860	-0.008	0.290	0.094	-0.045	0.020	0.086	0.017	0.074	-0.034
15	0.633	-0.016	-0.075	0.002	-0.056	0.008	0.014	0.066	-0.041	-0.073
16	0.278	-0.014	-0.249	-0.122	-0.108	0.066	-0.054	0.073	-0.078	0.007
17	-0.042	-0.013	0.088	0.010	0.008	-0.000	-0.336	0.104	-0.068	0.235
18	-0.167	-0.033	0.053	-0.030	-0.121	-0.092	-0.336	0.088	-0.181	0.078
19	-0.037	0.180	-0.007	-0.081	0.142	-0.103	0.252	-0.015	0.022	0.647
20	-0.116	0.009	0.095	-0.168	0.055	-0.184	0.129	-0.027	-0.026	0.408
21	0.168	0.138	0.496	0.015	-0.024	0.069	0.102	-0.008	-0.055	0.300
22	0.004	0.007	0.287	0.011	-0.093	0.120	0.071	0.028	-0.121	0.172
23	0.399	0.069	0.723	-0.092	0.028	0.019	0.017	0.020	-0.046	0.025
24	0.411	0.122	0.680	-0.069	-0.001	0.060	0.060	-0.008	-0.102	-0.008
25	-0.229	0.005	-0.013	-0.016	-0.013	-0.056	0.087	-0.353	-0.628	-0.102
26	0.028	-0.061	0.122	-0.061	-0.675	0.119	0.174	-0.373	0.120	-0.042
27	0.154	0.062	-0.134	-0.001	-0.312	-0.061	-0.214	-0.195	0.834	-0.001
28	0.083	-0.157	-0.003	-0.136	0.127	-0.007	0.050	0.918	-0.113	-0.027
29	-0.036	0.153	0.057	0.208	0.815	0.022	-0.062	-0.027	-0.218	0.165
30	-0.099	0.089	-0.144	-0.151	-0.230	0.081	0.135	0.126	0.021	0.219
31	0.150	-0.063	0.578	-0.097	-0.030	-0.018	-0.260	-0.057	0.010	-0.169
32	-0.056	0.412	-0.101	0.144	-0.078	0.129	-0.013	-0.030	0.103	-0.024
33	0.079	0.335	-0.012	0.008	-0.149	-0.194	0.079	0.061	0.101	-0.033
34	0.001	0.203	0.052	-0.006	-0.136	-0.016	0.021	0.138	-0.052	-0.165
35	-0.039	0.020	-0.006	0.167	0.242	0.093	-0.005	-0.093	-0.012	0.217
36	0.109	-0.036	-0.036	0.520	-0.005	0.000	-0.007	0.049	0.080	0.046
37	0.036	0.184	-0.043	0.572	0.157	0.004	-0.057	0.017	-0.071	-0.140
38	-0.040	-0.031	-0.057	0.365	-0.171	-0.125	0.105	0.124	-0.122	-0.161
39	0.144	0.099	-0.008	0.624	0.169	0.022	-0.019	-0.047	-0.026	-0.031
40	-0.097	0.011	0.028	0.271	-0.287	-0.035	0.044	0.146	-0.128	-0.247
41	0.098	0.177	-0.118	0.688	0.112	0.112	-0.009	-0.133	0.034	-0.069
42	0.446	-0.046	0.020	0.089	0.093	-0.041	-0.167	-0.076	0.061	0.016
43	0.174	0.079	-0.183	0.055	0.140	-0.101	-0.265	-0.142	-0.023	0.048
44	0.241	-0.016	0.132	-0.025	-0.165	-0.099	-0.170	-0.048	-0.062	-0.088
45	0.142	0.030	-0.236	0.000	-0.015	-0.060	0.652	-0.011	-0.161	0.294
46	-0.203	-0.054	-0.065	0.031	0.112	0.060	-0.839	-0.042	0.142	-0.235
.1HP	50	61	54	61	50	63	59	76	63	50
.2HP	74	76	78	83	87	87	83	93	93	74

APPENDIX B - 6

MAXPLANE MASTER VECTOR STRUCTURE
N = 210

	1	2	3	4	5	6	7	8	9	10
1	-0.025	0.089	0.010	0.090	0.024	0.389	-0.024	-0.038	0.004	-0.275
2	-0.039	0.163	-0.032	-0.275	-0.061	-0.094	-0.206	0.089	0.037	-0.304
3	-0.021	0.101	-0.082	-0.036	-0.119	-0.484	-0.073	-0.010	0.033	-0.073
4	-0.103	0.141	-0.049	-0.054	-0.111	0.124	-0.154	0.076	-0.086	-0.287
5	0.010	0.272	-0.249	-0.075	-0.220	-0.461	-0.243	0.081	0.064	0.356
6	-0.104	0.038	-0.015	-0.044	-0.041	0.319	-0.142	0.136	0.094	-0.202
7	-0.016	0.209	-0.057	-0.026	-0.118	0.195	-0.143	-0.021	0.052	-0.298
8	0.055	0.378	-0.289	-0.166	-0.421	-0.471	-0.259	0.073	0.013	0.097
9	0.024	0.393	-0.271	-0.257	-0.318	-0.394	-0.302	0.081	0.002	-0.183
10	-0.110	0.153	-0.186	0.014	-0.265	-0.016	-0.231	0.159	0.154	0.336
11	0.604	-0.020	0.259	0.036	-0.005	0.006	0.084	-0.740	-0.363	-0.057
12	0.364	-0.043	-0.075	-0.030	0.017	0.066	0.070	-0.373	-0.336	-0.127
13	0.580	0.046	0.169	0.059	-0.003	-0.034	0.081	-0.691	-0.316	-0.098
14	0.622	-0.038	0.234	0.089	-0.001	0.032	0.099	-0.767	-0.370	-0.078
15	0.490	-0.066	-0.017	0.037	0.015	0.044	0.072	-0.490	-0.364	-0.081
16	0.243	-0.020	-0.172	-0.079	-0.062	0.031	-0.021	-0.152	-0.221	0.062
17	0.040	0.206	-0.052	-0.104	-0.169	-0.171	-0.439	0.056	-0.076	0.462
18	-0.066	0.106	-0.021	-0.079	-0.179	-0.140	-0.347	0.147	-0.085	0.270
19	-0.035	0.603	-0.347	-0.387	-0.407	-0.393	-0.370	0.158	0.040	0.484
20	-0.102	0.431	-0.175	-0.357	-0.325	-0.403	-0.302	0.157	0.051	0.347
21	0.110	0.232	0.233	-0.114	-0.214	-0.064	-0.138	-0.218	-0.114	0.234
22	0.010	0.102	0.153	-0.047	-0.155	-0.030	-0.041	-0.050	-0.094	0.185
23	0.293	0.012	0.524	-0.074	0.010	0.044	0.002	-0.507	-0.233	-0.013
24	0.279	-0.034	0.519	-0.032	0.028	0.131	0.076	-0.514	-0.263	-0.091
25	-0.444	-0.067	0.028	0.025	0.047	0.035	0.126	0.182	-0.150	-0.182
26	-0.237	-0.083	0.137	0.001	-0.427	0.070	0.206	-0.083	0.248	-0.083
27	0.016	0.023	-0.111	-0.013	-0.250	0.000	-0.180	-0.108	0.589	0.070
28	0.699	-0.017	0.007	-0.091	0.108	-0.094	0.053	-0.049	-0.557	0.021
29	-0.056	0.132	-0.033	0.081	0.490	0.007	-0.167	0.046	-0.119	0.149
30	0.021	0.157	-0.195	-0.196	-0.302	-0.033	-0.045	0.152	0.001	0.151
31	0.066	-0.139	0.503	0.004	0.096	0.060	-0.065	-0.307	-0.038	-0.022
32	-0.055	-0.084	-0.027	0.151	0.013	0.390	0.067	0.050	0.111	-0.203
33	0.104	0.041	-0.032	-0.016	-0.144	0.119	0.021	-0.052	0.001	-0.306
34	0.095	-0.143	0.119	0.073	0.021	0.242	0.147	-0.041	-0.102	-0.311
35	-0.094	0.152	-0.090	0.040	0.049	-0.072	-0.144	0.063	0.056	0.266
36	0.116	0.039	-0.049	0.361	-0.037	-0.052	-0.041	-0.069	-0.022	0.077
37	0.033	-0.129	0.042	0.490	0.225	0.226	0.077	-0.041	-0.074	-0.225
38	0.053	-0.090	0.009	0.316	-0.050	0.003	0.161	0.033	-0.123	-0.259
39	0.067	-0.039	0.016	0.479	0.158	0.105	0.022	-0.120	-0.064	-0.072
40	0.028	-0.202	0.135	0.309	-0.040	0.154	0.219	0.032	-0.111	-0.323
41	-0.023	-0.111	-0.046	0.565	0.176	0.247	0.095	-0.063	0.040	-0.139
42	0.264	0.032	-0.003	0.048	0.042	-0.071	-0.154	-0.353	-0.136	0.125
43	0.022	0.081	-0.181	-0.003	0.034	-0.049	-0.271	-0.072	-0.031	0.135
44	0.133	-0.037	0.118	0.001	-0.091	-0.019	-0.092	-0.233	-0.135	-0.024
45	0.083	0.280	-0.332	-0.152	-0.249	-0.223	0.225	0.016	-0.173	-0.054
46	-0.165	-0.228	0.082	0.147	0.277	0.166	-0.411	0.125	0.215	0.238
(.1HP	54	48	50	63	48	52	46	52	50	37
(.2HP	74	76	76	78	70	72	70	76	74	57

	(LOADINGS	MEAN P/F	MEAN (P/F	SIGMA	SIGMA (
.1 HP	50.0	23.0	50.0	3.06	6.44